

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 17 May 64 Total Minutes: 657 Total Miles 105

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>105</u>	<u>619</u>	<u>5.8</u>	<u>5.8</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
<u>81</u>	<u>38</u>	<u>1</u>	<u>40</u>	<u>330</u>	<u>229</u>	<u>1</u>	<u>81</u>	<u>4.07</u>	<u>6.03</u>	<u>1</u>	<u>2.03</u>	<u>3.14</u>	<u>2.18</u>	<u>.01</u>	<u>.77</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>6</u>	<u>6</u>	<u>12</u>	<u>12</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>11</u>	<u>11</u>	<u>2</u>	<u>.11</u>	<u>.11</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>23</u>	<u>271</u>	<u>11.78</u>	<u>2.58</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>3</u>	<u>3</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>1.67</u>	<u>1.67</u>	<u>.05</u>	<u>.05</u>	<u>.05</u>	<u>.05</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
------------------	-----------------	-----------------	--------------------	-------------------	-------------------

<u>8</u>	<u>472</u>	<u>.08</u>	<u>8</u>	<u>472</u>	<u>.08</u>
	<u>473</u>			<u>473</u>	

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 18 May 64 Total Minutes: 775 Total Miles 131

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>41</u>	<u>320</u>	<u>7.80</u>	<u>2.44</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>33</u>	<u>14</u>	<u>1</u>	<u>2</u>	<u>160</u>	<u>123</u>	<u>1</u>	<u>2</u>	<u>4.85</u>	<u>8.79</u>	<u>1</u>	<u>1</u>	<u>1.22</u>	<u>.94</u>	<u>.01</u>	<u>.02</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>-</u>	<u>1</u>	<u>2</u>	<u>-</u>	<u>1</u>	<u>1</u>	<u>-</u>	<u>1</u>	<u>.02</u>	<u>.02</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>12</u>	<u>158</u>	<u>13.17</u>	<u>1.21</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>6</u>	<u>269</u>	<u>.05</u>	<u>2</u>	<u>216</u>	<u>.02</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 19 May 64 Total Minutes: 767 Total Miles 135

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
78	410	5.13	3.04

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
71	19	15	8	182	58	18	8	2,56	3.05	1.20	1	1,35	43	13	06

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
1	1		1	1		1	1				

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
6	217	36.17	1.61

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
6	5	-	7	6				1.5	1.2			1,07	1,04		

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
9	315	,07	4	279	,03

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 20 May 64 Total Minutes: 752 Total Miles 124

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
78	583	7.47	4.70

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
73	29	20	8	291	235	22	8	3.99	8.1	1.1	1	2.35	1.90	.18	.06

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
3			3			1			.02		

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
6	280	46.67	2.26

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
3	3			3	3			1	1	.02	.02

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
2	2	1	.02

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
7	489	.06	6	484	.05

29 $\sqrt{200}$

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 21 May 64

Total Minutes: 768 Total Miles 131

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>25</u>	<u>29</u>	<u>1.16</u>	<u>.22</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
<u>22</u>	<u>2</u>	<u>13</u>	<u>0</u>	<u>26</u>	<u>2</u>	<u>15</u>	<u>0</u>	<u>1.18</u>	<u>1</u>	<u>1.15</u>	<u>0</u>	<u>.20</u>	<u>.02</u>	<u>.11</u>	<u>0</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>	<u>3</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>2</u>	<u>1</u>	<u>.02</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 22 May 64

Total Minutes: 779

Total Miles 123

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>18</u>	<u>36</u>	<u>2</u>	<u>.29</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>15</u>	<u>6</u>	<u>0</u>	<u>5</u>	<u>22</u>	<u>10</u>	<u>0</u>	<u>6</u>	<u>1.47</u>	<u>1.67</u>	<u>0</u>	<u>1.20</u>	<u>.18</u>	<u>.08</u>	<u>0</u>	<u>.05</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>.02</u>	<u>.01</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>12</u>	<u>6</u>	<u>.10</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>3</u>	<u>20</u>	<u>.02</u>	<u>1</u>	<u>7</u>	<u>.01</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 23 May 64

Total Minutes: 793

Total Miles 136

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>31</u>	<u>93</u>	<u>3.00</u>	<u>.68</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>23</u>	<u>13</u>	<u>- 2</u>	<u>73</u>	<u>61</u>	<u>- 2</u>	<u>3.17</u>	<u>4.69</u>	<u>- 1</u>	<u>54</u>	<u>45</u>	<u>- .01</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>.01</u>	<u>-</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>8</u>	<u>18</u>	<u>2.25</u>	<u>.13</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>2</u>	<u>47</u>	<u>.01</u>	<u>0</u>	<u>0</u>	<u>0</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 24 May 64

Total Minutes: 798

Total Miles 124

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>13</u>	<u>15</u>	<u>1.15</u>	<u>.12</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
<u>12</u>	<u>3</u>	<u>1</u>	<u>-</u>	<u>14</u>	<u>3</u>	<u>1</u>	<u>-</u>	<u>1.17</u>	<u>1</u>	<u>1</u>	<u>-</u>	<u>.11</u>	<u>.02</u>	<u>.01</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1</u>	<u>.01</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 25 May 64 Total Minutes: 795 Total Miles 138

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
7	7	1	.05

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	WT	P	B	T	WT	P	B	T	WT	P	B
5				5				1			

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
1	1	1	1	1	1	1	1	1	.01	.01	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1	.01

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 26 May 64 Total Minutes: 785 Total Miles 133

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>16</u>	<u>19</u>	<u>1.19</u>	<u>.14</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>16</u>	<u>5</u>	<u>1</u>	<u>6</u>	<u>19</u>	<u>6</u>	<u>1</u>	<u>7</u>	<u>1.19</u>	<u>1.20</u>	<u>1</u>	<u>1.17</u>	<u>.14</u>	<u>.05</u>	<u>.01</u>	<u>.05</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 27 May 64 Total Minutes: 772 Total Miles 129

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
80	1192	14.9	9.24

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
76	26	31	11	483	414	43	11	6.36	15.54	1.39	1	3.75	3.21	3.33	.09

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
2	2					1			.02		

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
12	707	58.92	5.48

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
11	1093	.09	9	1083	.07

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 28 May 64 Total Minutes: 752 Total Miles 133

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>65</u>	<u>300</u>	<u>4.62</u>	<u>2.26</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile					
T	WT	P	B	T	WT	P	B	T	WT	P	B			
<u>62</u>	<u>16</u>	<u>35</u>	<u>2</u>	<u>182</u>	<u>97</u>	<u>52</u>	<u>2</u>	<u>2.94</u>	<u>6.06</u>	<u>1.49</u>	<u>1.37</u>	<u>.73</u>	<u>.39</u>	<u>.02</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>2</u>	<u>-</u>	<u>2</u>	<u>2</u>	<u>-</u>	<u>1</u>	<u>1</u>	<u>-</u>	<u>.02</u>	<u>.02</u>	<u>.02</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>116</u>	<u>29</u>	<u>.87</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>5</u>	<u>223</u>	<u>104</u>	<u>1</u>	<u>100</u>	<u>.01</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 29 May 64

Total Minutes: 766 Total Miles 115

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>73</u>	<u>643</u>	<u>8.93</u>	<u>5.51</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>66</u>	<u>25</u>	<u>38</u>	<u>7</u>	<u>320</u>	<u>126</u>	<u>83</u>	<u>7</u>	<u>4.85</u>	<u>5.04</u>	<u>2.18</u>	<u>1</u>	<u>2.78</u>	<u>1.10</u>	<u>.71</u>	<u>.06</u>

III. Abundance of Tropicbirds:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	
<u>2</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>.02</u>	<u>.01</u>	<u>.01</u>				

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>9</u>	<u>321</u>	<u>35.67</u>	<u>2.79</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>12</u>	<u>560</u>	<u>.10</u>	<u>34</u>	<u>324</u>	<u>417</u>
					<u>.03</u>

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 30 May 64 Total Minutes: 781 Total Miles 139

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
23	31	1.35	.22

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
22	3	9	1	30	6	12	1	1.36	2	1.33	1	.23	.04	.09	.01

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 31 May 64 Total Minutes: 794 Total Miles 80

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
17	22	1.29	.28

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting				Birds/Mile					
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
14	8	2	1	19	9	2	1	1.36	1.13	1	1	.24	.11	.03	.01

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting				Birds/Mile				
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
2	1	1	2	1	1	1	1	1	.03	.01	.01			

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1	.01

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting				Birds/Mile					
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
1	5	.01			

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 1 June 64 Total Minutes: 808 Total Miles 150

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
9	9	1	.06

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
5	1	1	0	5	1	1	0	1	1	1	0	.03	.01	.01	0

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
3	2		3	2		1	1		.02	.01	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1	.01

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 2 June 64 Total Minutes: 828 Total Miles 150

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
18	25	1.39	.17

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile						
T	WT	P	B	T	WT	P	B	T	WT	P	B				
15	2	1	7	22	6	1	7	1.47	3	1	1	.15	.04	.01	.05

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
3	2		3	2		1	1		.04	.01	

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 3 June 64

Total Minutes: 826 Total Miles 130

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
65	352	5.42	2.71

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
38	12	2	6	154	82	2	6	4.05	6.83	1	1	1.18	.63	.02	.05

III. Abundance of Tropicbirds:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	
8	1	4	8	1	4	1	1	1	.06	.01	.03				

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
26	187	7.19	1.44

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
3	3	1	.02

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
9	272	.07	54	239	.03

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 4 June 64

Total Minutes: 816 Total Miles 128

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>78</u>	<u>136</u>	<u>1.74</u>	<u>1.06</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
47	12	2	<u>15</u>	63	18	2	18	1.34	1.50	1	<u>1.20</u>	.49	.14	.02	.14

III. Abundance of Tropicbirds:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT	
10	7	2	16	13	2	1.60	1.86	1	.13	.10	.02				

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>23</u>	<u>55</u>	<u>2.39</u>	<u>.43</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
1	1	1	1	1	1	1	1	1	1	1	1	.01	.01	.01	.01

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
1	<u>15</u>	<u>.01</u>	1	<u>15</u>	<u>.01</u>

1. 72 1377

2. 30-23-29, 176-151-2-11

3. 1-0-0, 1-0-0, 1-0-0

4. 52-1090

6. 25-0-23-2, 104-0-102-2

7. 4-6

8.

SI-MNH-955a
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART A

DATE: 5 June 64

Total Minutes: 376 Total Miles 73

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>72</u>	<u>1377</u>	<u>19.13</u>	<u>18.88</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>30</u>	<u>23</u>	<u>2</u>	<u>9</u>	<u>176</u>	<u>151</u>	<u>2</u>	<u>11</u>	<u>5.87</u>	<u>6.57</u>	<u>1</u>	<u>1.22</u>	<u>2.41</u>	<u>2.07</u>	<u>2.33</u>	<u>1.15</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>52</u>	<u>1090</u>	<u>20.96</u>	<u>14.83</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>25</u>	<u>0</u>	<u>23</u>	<u>2</u>	<u>104</u>	<u>0</u>	<u>102</u>	<u>2</u>	<u>4.16</u>	<u>0</u>	<u>4.43</u>	<u>1</u>	<u>1.42</u>	<u>-</u>	<u>1.40</u>	<u>0.83</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>6</u>	<u>1.5</u>	<u>1.07</u>

VIII. Abundance of Flocks:

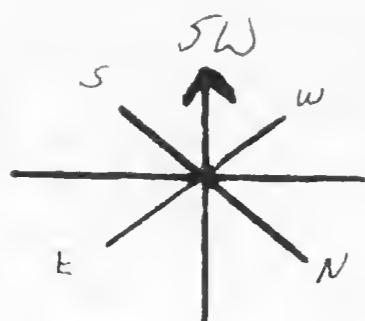
Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>13</u>	<u>1136</u>	<u>.18</u>	<u>12</u>	<u>1107</u>	<u>.16</u>



DATE 17 May 64
Pg. # 1

time species # dir. hgt. remarks loc.

0830	begin observations					
0900	Haw. Noddy	1				
0905	" "	1				
0906	W-T Tropicbird	1				
0907	W-T Tropicbird	1			over land	
0907	Sooty Tern	1				
0911	Haw. Noddy	1			headed directly for cliffs	
0912	W-T Tropicbr.	1			flushed from water by approaching ship	
0915	Auricular Noddy	2				
0921	Wedgetail	3				
0932	Whitet. Tropicb.	1				
0937	Wedgetail	1			around on cliff face	
0938	"	1				
0942	W-T Tropicbird	1				
1036	Wedgetail	1				
1041	Sooty Tern	1				
1043	Wedgetail	2				
1127	Wedgetail	1				
1136	Wedgetail	3	SE			
1137	Sooty Shear	1	SE	✓		
1138	Wedgetail	3	SE			
1150	Wedgetail	1	SE			8
1152	Wedgetail	3	E			4
1154	Bulwers P.	2	E			2
1204	Wedgetail	1	W			5
1213	Bulwers P?	1	NE			6
1216	Bulwers P?	1	SE			
1219	Wedgetail	1				
1220	Shearwater/petrel	1			seen by watch	
1221	Bulwers Petrel	3				
1225	Bulwers P.	9				
1227	Wedgetail	1			moving flock - tight packed feeding?	
1228	Newell's Shear	2				



DATE 17 May 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1230	Wedge-tail	1				
1229	WT Tropicb	1				
1236	Bulwer's P.	9			feeding flock	
	Wedge-tails.	1				
1243	Bulwer's P	1	N			
1248	Bulwer's P	1	S			
1249	" "	8			feeding flock	
1255	" "	1	NW			
1259	Sooty Tern	1	NW			
1302	Bulwer's P	1	N			
1305	" "	1	SE			
	Wedge-tail	1	NW			
1307	Bulwer's P	1	S			
1309	" "	5				
1317	Common Noddy	1	S		(4 sitting in group)	
1323	Sooty Shear	1	NW		✓	
	Wedge-tail	2	S			
1325	Com. Noddy	2	—			
	Sooty Tern	2	—			
	Wedge-tail	80-100				
	R.F. Booby	50-60				
1326	Bulwer's P.	1	imm			
1330	Newell's Shear.	2	NW			
1342	Bulwer's P	1	SE			
	Com. Noddy	1	E			
1414	R.F. Booby	1	adult			
1419	Bulwer's P	2	NE		heading NE into flock	
1424	" "	1	N			
1430	flock to SE	50	at 1 mile			
1445	flock to S	50	at $\frac{1}{2}$ mile+			
1448	Red-footed B.	3			- now 5 Boobies in flock	
1449	Bulwer's P	2				
1456	Wedge-tail	2				
	Bulwer's P	1			flying to join flock	
1500	flock swinging to NE					
1515	Sooty Tern	50				
	Wedge-tail	50				
	Red-footed B	2				
	Bulwer's	4				
	Newell's S.	3				
	Noddy Tern	10				



DATE 17 May 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1524	Wedge-tails	1	NE		headed toward flock	
	Bulwer's P	1				
1526	Bulwer's P	1	NE			
1530	Bulwer's P	2	S			
1535	Bulwer's P	1	S			
1547	Bulwer's P	1	S			
1548	Sooty Tern	2	N			
1551	Sooty Shear	1	N		✓ came within 100 yds - underwings only slightly lighter	
1553	Sooty Tern	1	NE			
1554	Bulwer's P	1	S			
1558	Sooty Shear	1				
	Bulwer's P.	1	NE			
1600	Shearwater/ Petrel	1				
1601	Wedge-tail	1				
1602	Wedge-tail	1	W			
1614	Wedge-tail	40-50				
	Sooty Tern	80-100				
1616	Wedge-tail	1	W			
1631	"	1	W			
1638	Wedge-tail	15-20				
	Sooty Tern	30-40				
1649	Bulwer's P	1	SE			
1652	Pet. Shear	2	NE			
1653	Wedge-tail	1	S			
1657	"	1	SE			
1704	Newell's S.	1	NE			
	Bulwer's P	1				
1705	Wedge-tail	1	N			
	Wedge-tail	1	NE			
1711	Sooty Tern	1	NE			

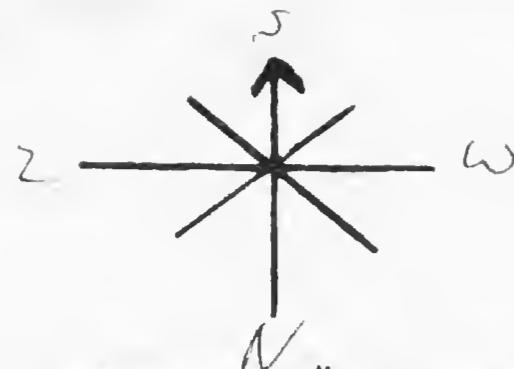


DATE 17 May 64
Pg. # 4

time	species	#	dir.	hgt.	remarks	loc.
1717	Bulwers P	1				
1722	com. Noddy	1				
1724	Bulwers P	1	SE			
1726	Bulwers P	1	NE			
1727	Wedge tail	1	NE			
1732	Bulwers P	1	SE			
1740	Bulwers P	1	SE			
1745	Sooty Tern	1	NW			
1749	Bulwers P	1	S			
1754	Dark-rump P.	1	NW			
1757	Sooty Tern	1	NE			
1758	Bulwers P	1	N			
1800	Newell's S.	1				
1802	Skuja ?	1	N		large all dark - constant rowing wingbeats	
1803	Wedge tail	1	N		Pointed wings	
1807	Sooty Tern	3	NE			
1815	Newell's S.	1				
	Wedge tail	1				
1820	Bulwers P	4				
	Wedge tail	30			feeding flock	
	Sooty Tern	25				
1825	Sooty Tern	20				
	Wedge tail	50			feeding flock	
1828	Bulwers P.	1				
	Sooty Tern	1				
1835	Sooty Tern	3				
1842	Wedge tail	1	N			
1848	Bulwers P	2	N			
	wedge tail	1	N			
	sooty shear	1	N			
25 1855	Wedge tail S.	2	N			

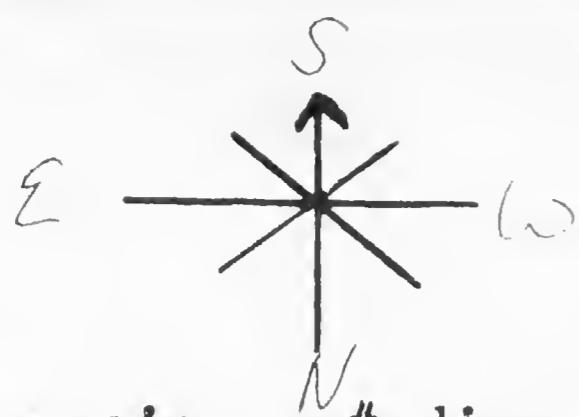


DATE 17 May 64
Pg. # 5



DATE 18 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0555	Sooty Tern Wedge-tail	1			begin observation	
0615	Shearwater/ Petrel	1			seen by watch	
0655	Petrel sp	1	SE		probably White-necked or Dark-rumped Petrel	
0706	Sooty Shear Shearwater/ Petrel	1	NW			
		2	S			
0720	Shearwater/ Petrel Flack					
	Sooty Tern Wedge-tail	75	± 25			
		50	± 10		feeding	
0745	Flack					
	Sooty Tern Wedge-tail s.	40	± 10			
		50	± 10		feeding	
	Tropicbird sp	1				
0805	Wedge-tail	2				
0827	W-T. Tropicbird	1	E			
0835	Sooty Tern	3	N			
0858	Wedge-tail	5	S			
0904	Wedge-tail	1	S			
0907	Sooty Tern	2	SE			
0928	Wedge-tail	1	NW			
0932	Sooty Tern	3	S			
0943	Wedge-tail	3	S			
0950	Newell's S.	1	S			
0955	Shearwater	1	S			
1057	shearwater/ Petrel	1	NW			
1126	Sooty Tern	15				
1130	(Wedge-tail s)	1				
1132	Sooty Shear	1	NW			
1137	Sooty Tern	1				
1158	Sooty Tern	1	E			



DATE 18 May 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1216	Newell's S.	1	NW			
1228	Harcourt's P.	1	S			
1259	Sooty Shear	1	NW			
1350	Shearwater	15			seen by watch in scattered flock; all flying close to water	
1357	Shear/Pet	1	S			
1402	Bulwer's P	1	NW			
1405	Sooty Tern	1	NW			
1424	Sooty Shear	3	NW			
1550	Sooty Tern	15			at least 1 immature	
	Wedge-tail S	3		25-100ft	scattered flock	
1606	Shearwater/ Petrel	1	S			
1610	Wedge-tail	2	SW			
1627	Sooty Shear	1	NW		✓	
1645	Sooty Shear	1	NW		✓	
1652	Sooty Shear	1	NW		✓	
1731	Wedge-tail	2	S			
1753	Bulwer's P	1	N			
1843	Wedge-tail	1	N			
1850	Wedge-tail	1	NW			
	Sooty Tern	1	NW			
1905					end observation	

39
123
158
320



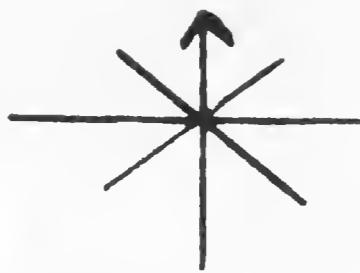
DATE 19 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
------	---------	---	------	------	---------	------

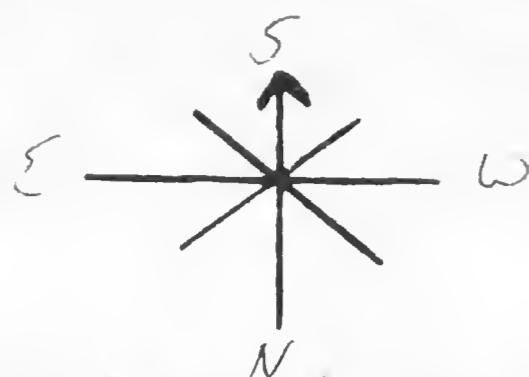
0610	begin observations					
0611	Sooty Shear	1	NW		✓	
0620	Sooty Tern	1				
	Wedgetail	4				
0630	Bonin Petrel	1				
0623	Harcourt sp.	1	S			
0700	Tropicbird sp.	1	W			
0730	Red Tailed Tropic	1				
0730	Shear/Pet	1	NW			
0748	Sooty Tern	1				
	Shearwater	10				
	Bonby/Tropicbird	3				
0750	Newell's S.	2	S			
0759	B-F. Booby	1	S			
0810	Newell's S.	1	W			
0817	Shearwater/ Petrel	1	W			
0829	Bulwer's P.	1	N			
0834	Petrel sp.	4	W			
	Wedgetail S.	1				
0842	Newell's S.	1	E			
0850	Shearwater/ Petrel	1	N			
0855	Harcourt sp.	1	N			
0905	Wedgetail	2	S			
0906	Sooty Shear	2	NW	✓		
0937	Sooty Shear	1	N	✓		
0943	Sooty Shear	1	NW	✓		
0950	Bulwer's P	1	N			
0955	B-F Booby	1	E			
0959	Petrel sp	1	NW			

subadult
Brown upperparts - white head - mottled brown
underswing with white splotches white belly -

18
168
177
48
411



DATE 19 May 64
Pg. # 2



DATE 19 May 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1513	D-R Petrel	1	S			
	Wedgetail	5	S		sitting on water in group	
1529	Sooty Shear	1	NW			
	Bonin Is. Petrel	1	NW		2 dark + 3 light	
1602	Bonin Is. Petrel	1	W			
1603	Sooty Shear	1	NW			
1608	Flock					
	Sooty Tern	100				
	Wedgetail	2				
	Fairy Tern	1			light phase	
1612	Sooty Shear	1	NE			
	Wedgetail	1	NE			
	Novell's S	2	NE		dark phase	
	Bonin Is. P.	1	NE			
1621	Shearwater/ petrel	1	W			
1629	Bonin Is. P.	1	W			
1634	Shearwater/ Petrel	1	SW			
1636	Novell's S.	1	SE			
1658	Bulwer's P.	1	N			
1702	Shearwater/ Petrel	1	W		seen by watch	
1707	Sooty Shear	1	NW			
1716	Bonin Is. P.	1	N			
1728	Pomarine Jaeger	1	N			
1730	Shearwater/ Petrel	1	W			
1756	B-F Booby	2	W			
1800	Sooty Tern	25-30			subadults	
	Wedgetail	10-15				
	Fairy Tern	3				
					3 flock feed	



DATE 19 May 64
Pg. # 4

time species # dir. hgt. remarks loc.

1807	Wedge-tail	3	N			
1819	White-tailed P.	1	E			
1821	Newell's S.	2	S			
	Bonin Is. P.	1	S			
1832	Pst/Shear	3	SE			
1838	Bonin Is. Pst	1	SW			
1842	Harcourt sp	1				
1844	Bonin Is. P.	1	SW			
1845	Newell's S	1	SE			
1848	Bulwer's P	1	E			
1850	Harcourt sp	1	S			
1853	Newell's S	1	SE			
1907	White-tailed P.	1	E			
1910	and observation					

37
67
68
24
213
409



DATE 20 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0605	begin observations					
0610	Wedge-tail	3	S		light	
0637	Shearwater / Petrel	1	NE			
0652	Bulwer's P.	1	SE			
0700	Sooty Tern	50				
	Wedge-tail	75				
	Dark-rumped P.	1				
	B. F. Booby	1				
	Frigatebird	1				
0706	Wedge-tail S.	1	S		dark	
0712	Bonin Is. P.	2	N			
0719	B. F. Booby	1	SE		imm.	
0724	Bonin Is. P.	1	NW			
0728	Bonin Is. P.	1	SW			
0810	Wedge-tail	1	S		dark phase	
0822	Wedge-tail	5	NE		3 dark, 2 light	
0831	Wedge-tail	2	S		dark	
0835	Newell's S	1	S			
0845	"	1			Followed ship for short time off steamer	
0849	Shearwater	1				
0852	Lid sp	2	NW			
0852	Bulwer's P.	1	NW			
0858	White-neck P.	1	NW			
0900	Harcourt sp.	1	NW			
0919	Wedge-tail	1	S		dark	
0932	Shear/Pet	1	NW			
0937	Wedge-tail	1	E		dark	
0942	Bulwer's P	1	NW			
0946	Wedge-tail	2	N		dark	
0947	Bulwer's P	1	N			
1000	Sooty Tern	75-100				
	Wedge-tail	40-50				
	Boobiebird	1				
1005	Bonin Is. P.	1				
1015	White-necked P.	1	NW			
1019	Bonin Is. P	1	SW			
1025	Shear/petrel	1	NW		seen by watch	

67
235
280
—
582



DATE 20 May 68
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1030	Wedgetail	1	SE			
1032	Bulwer's P.	1	SW			
1034	Newell's S.	1				
1054	Bulwer's P.	1	S			
	Shearwater Petrel	2				
1058	Bonin Isp.	1				
1058	Sooty Tern	10			small feeding flock	
1105	Wedgetail	1	SE		dark	
1120	Shearwater Petrel	1			seen by watch	
1121	Newell's S.	1	SE			
	Shearwater Petrel	1	SE		seen by watch	
1148	Wedgetail	2	SE		dark	
1153	Bulwer's P.	1	SE		sat on water	
1154	Wedgetail	1	SE		dark	
1205	Tropicbird sp	1		100ft		
1220	Wedgetail S	1	NE			
1237	White-necked Petrel	1	S		dark	
1255	Sooty Tern	100-125				
	Wedgetail	50-60				
	Tropicbird	1				
1257	Newell's S.	1	SE			
1307	White-necked P	2	SE			
1311	Wedgetail	1	SE		dark	
1313	Newell's S	1	SE			
1316	Wedgetail	3	SE		dark	
1346	White-necked Heron	1	SW			
	Heron	1	SE			
1414	D.R. Tern	1	SE			
	B-F. Sooty	1	SE			
	Storm Petrel	2				
1415	Jaeger?	1				
1425	Bonin Isp.	1				

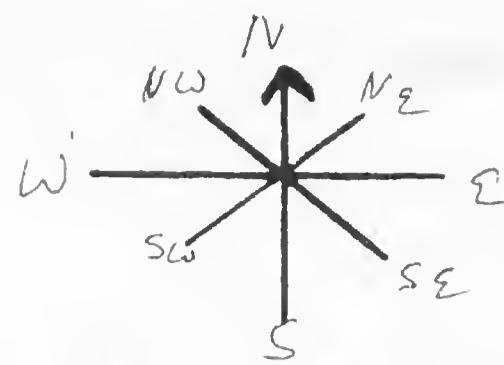


DATE 20 May 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1445	Wedge-tail	1	SE		dark	
1447	White-necked Dr.	1	SE			
1456	Newell's S.	1	S			
1520	Wedge-tail S	1	SE		dark	
1525	Sooty Tern	25				
Q.04	Wedge-tail	25			all dark <i>light</i>	
	Petrel sp.	1				
	Frigate bird	1				
	Newell's S.	2				
1526	Harcourt's S.P.	1				
1528	White-necked P.	1	SE			
1530	Wedge-tail	4	NW		dark - headed toward flock	
1531	Wedge-tail	2	SE		dark	
1537	Harcourt's S.P.	1	SE			
1602	Blue-faced B.			same as before		
1617	Wedge-tail S.	1	SE		dark	
1636	Sooty Tern	20			several immatures - turning toward adult plumage	
	Wedge-tail	5			dark	
1656	Bulwer's P.	1				
1723	Shearwater	1	NW			
1730	Petrel sp	1	N		brown uppers - white underparts except dark underwings with white splotches in center. Medium-sized & fairly chunky	
1732	Wedge-tail	1	S		probably <i>Arminjoniana</i>	
1734	Dark-rumped P.	1	N			
1735	Brown Petrel	1	S			
1750	Harcourt's S.P.	1	E			
1754	Wedge-tail	1	N		dark	
1759	Wedge-tail	2	N		dark	
1806	Wedge-tail	1	NE		dark	
1807	Harcourt S.P.	1	S		dark	
1841	Harcourt sp	1	E			
1855	end observation		E			

68
235
280
583

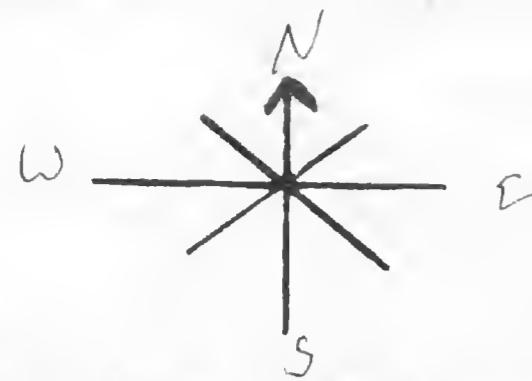
107
195
282
584



DATE 21 May 64
Pg. # 1

time species # dir. hgt. remarks loc.

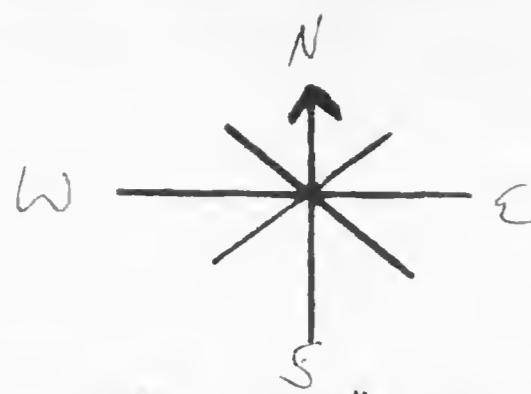
0610	begin observations					
0625	Shear/Pet	1	W			
	Petrel	1	W			
0632	Newells S	1	NE			
	Shearwater	1	E			
0634	Wedge-tail	1	E			
0642	Shear/Pet	1				
0651	White-necked P	1	W			
0713	Bonin Is. P	1	W			
0723	Bonin Is. P	2	W			
0803	Bonin Is. P.	1	W			
0821	Sooty Tern	1	E			
0825	Bonin Is. P.	1	W			
0831	Harcourts S.P.	1	W			
0833	Sooty Shear.	1	NW		flushed from water	
0859	Wedge-tail	1	S		light phase	
0912	White-t-Tropicb.	1	W			
0918	Bonin Is. Petrel	1	W			
0932	Bonin Is. Petrel	1	N			
1029	Bonin Is. Petrel	1	W			
1049	Bonin Is. Petrel	1	W			
1338	Shearwater/					
1358	Petrel Bonin Is. P.	1	S			
1406	Tern sp	1	W		seen by watch	
1412	one large turtle seen					
1630	Bonin Is. P	2	W			
1645	Shear/Pet	1	W			
1810	Dark-rumped P.	1	E			
1845	Christmas Is. S.	1	W			
1910	end observation					



DATE 22 May 64
Pg. # 1

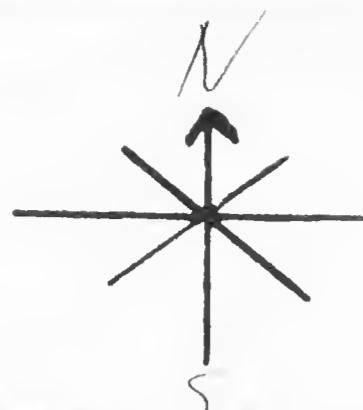
time	species	#	dir.	hgt.	remarks	loc.
------	---------	---	------	------	---------	------

0545	begin observations					
0640	Wedgetail	1	S		light phase	
0815	R-T Tropicbird	1	N		adult, but lacked red patches; some gray	
0835	Storm Petrel?	1	W		on lead + back — bill red	
1037	Wedgetail	5+	NW	{	scattered flock	
	Pink footed??	1		}	may have been same bird as seen last cruise but	
1115	Sooty Tern	7			distance prevented better look	
1127	Bulwer's P.	2	NW		small flock, probably not feeding	
1131	Wedgetail	1			dark bird landed on water	
1223	Newell's S	1	N			
1317	Bulwer's P	1	N			
1446	Sooty Tern	5	{		small feeding flock	
	Shearwater/ Petrel	2	}			
1516	Bulwer's P	1	N			
1545	White-t. Tropic	1	N			
1637	Storm Petrel	1				
1652	Wedgetail	1	N		light	
1656	Wedgetail	1	S		light	
1740	Bulwer's P	1	NW			
1745	Wedgetail	1	NW			
1818	Bulwer's P	1	W		light	
1855	end observations					



DATE 23 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0600	begin observations					
0710	Wedge-tail	2	N		light phase	
0730	Sooty Tern	1				
0737	Harcourt's	1	NW			
0745	Sooty Tern	1	NW			
0802	Wedge-tail S.	1	NW			
0821	Sooty Tern	5	NE		light	
0906	Shearwater petrel	1	S			
0931	Wedge-tail	2	E		light	
0932	Harcourt's sp.	1	W		light	
1040	Wedge-tail	1	S		light	
	Bulwer's P	1	S			
1132	Wedge-tail	2	W		light	
1147	Wedge-tail	2	S		light	
1214	Wedge-tail	3	S		light	
1218	Wedge-tail	2			light	
1225	Sooty Tern	2	W		light	
1311	Wedge-tail	1	W		light	
1322	Wedge-tail	3	NW		light	
1344	Wedge-tail	40				
	Sooty Tern	2			dark phase	
1400	Wedge-tail	2	E		light	
1350						
1406	Harcourt's sp.	2	E			
1450	Sooty Tern	3	cc			
1507	Sooty Tern	3	W			
1520	Storm Petrel	1	E			
1607	Sooty Shear	1	NW	✓		
1615	Wedge-tail	1	S		light	
1625	Sooty Shear	1	NW	✓		
1625	Shear/pet	1				
1634	Sooty Tern	1				
1637	Tropicbird sp	1	SW			
1654	Wedge-tail S.	1	W			
	Tropicbird	1				
	Immature Jaeger?					
1754	Bulwer's P	1	W		larger than Wedgetail-henry - dark underwing - white underparts - upperparts brown - nose white - somewhat blunt head. Fanned tail when attacked by Wedgetail	



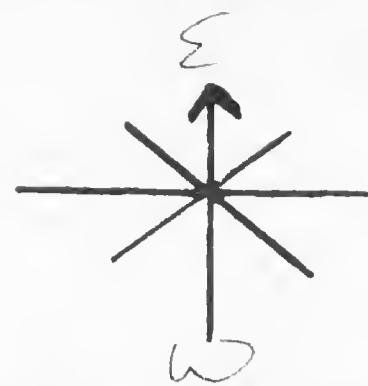
DATE 23 May 69
Pg. # 2

time species # dir. hgt. remarks

loc.

1827 *Novell's S.* 1 S

1900 end observations

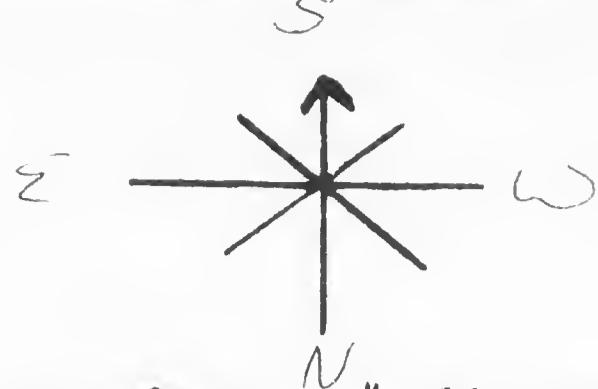


DATE 24 May 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0550	begin observations				
0530	Black-footed Albatross	1			seen by watch
0900	Harcourts sp.	1	E		
1030	Wedgetail	1	N		light
1130	Black-footed Albatross	2	N		"pirated" from tug + barge headed SW
1156	Harcourts sp.	1	SW		
1504	Harcourts, S.P.	1	NE		
1608	Harcourts sp.	1	NE		
1752	Sooty Shear	2	NW	✓	
1758	Harcourts, S.P.	1	E		
1812	^{JFB} Dark-rumped P.	1	E		
1816	Wedgetail	1	W		dark phase
1828	Sooty Tern	1	NW		
1830	Wedgetail	1	NW		
1830	Black-footed A.	1			
1900	end observations				

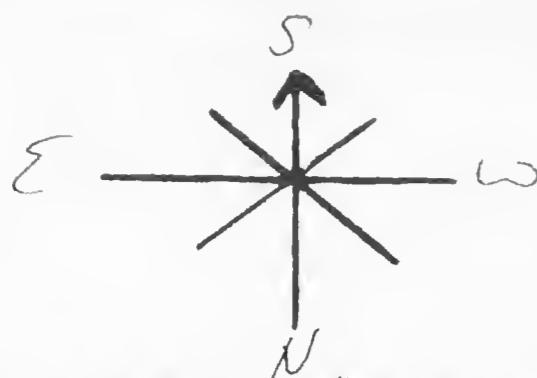


DATE 25 May 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0515	R-T Tropicbird	1				
0610	begin observations					
0610	Sooty Tern	1				
1148	W-T. Tropicbird	1	S		adult	
1255	Harcourt's S.P.	1	W			
1306	Harcourt's sp	1	SW			
1414	Sooty Shear	1	NW			
1523	Harcourt's sp	1	S			
1823	Newell's S.	1	N			
1845	end observations					

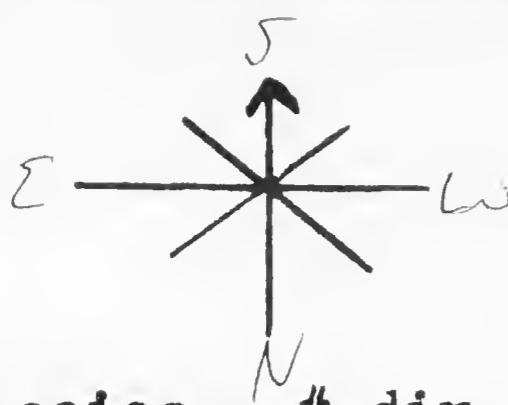


DATE 26 May 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0600	begin observations				
0635	shear/petrel	1	NW		
0807	Bulwer's P	1	SE		
0817	Bulwer's P	1	W		off shore
	Wedgetail	2	W		light
0827	Harcourt's sp	1	NW		
0845	Bulwer's P	1	NW		
1032	Wedgetail	1			
1036	Harcourt's sp.	1	SE		dark - seen by watch
1415	Wedgetail	1	S		dark phase
1506	Harcourt's sp.	1	W		
1525	Bulwer's P.	2	SE		
1625	Bulwer's P.	1	N		
1657	Bulwer's P	1	W		
1726	Shear/Pet	1	NW		
1825	Dark-rumped K	1	W		
1830	Wedgetail	1	SE		dark
1840	Wedgetail	1	S		transit
1845	end observations				light

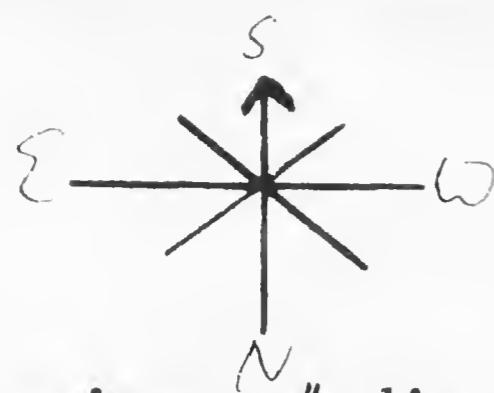


DATE 27 May 64
Pg. # 1

time species # dir. hgt. remarks loc.

0500	begin observations					
0505	Shear/Pet	1	SE			
0520	Wedgetail	2	S			
0549	Wedgetail	12				
0557	Bonin Is. P.	1	NW			
0602	Bonin Is. P.	1	SE			
0605	Wedgetail	2	S			
0612	Bulwer's P	1	N			
0627	Wedgetail	1	W			
0634	Tropicbird	1	NE			
0639	Bulwer's P	1	SE			
0644	Petrel	1	NW			
0711	D-R Petrel	1	NW			
0720	D.R. Petrel	2				
	Wedgetail	4	S			
0829	Wedgetail	1				
0846	Sooty Tern	5				
	Shear/Pet Wedgetails	5				
0847	Bulwer's P	1				
	Wedgetail	2				
0900	Wedgetail	7				
0901	Petrel sp	1				
0910	Wedgetail	1	light			
	White-necked P.	1	S			
0930	White-necked P.	1				
0935	White-necked P.	2				
0940	White-necked P.	1				
	Bulwer's P	1				
1015	Bonin Is P	1	NW			
1023	Shear/Pet	1				
1044	Petrel	1	N			
1052	Shear/Pet	1				
1100	Sooty Tern	200	± 25			
	Wedgetail	100	± 25			

137

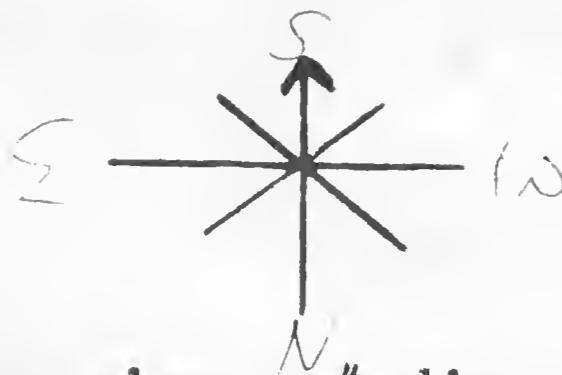


DATE
Pg. #

27 May 64
2

time species # dir. hgt. remarks loc.

1105	DR Petrel	1	NE			
1115	Sooty Tern	140	± 2.5			
	Wedgetail	80	± 10			
	DR Petrel	3				
	Bulwer's P	1				
1120	Sooty Tern	70	± 10			
	Wedgetail	40	± 10			
	DR Petrel	2				
1140	Sooty Tern	50	± 5			
	Wedgetail	30	± 10			
1142	Gull Tern	1	N			
1153	DR Petrel	1	W			
1157	W-N Petrel	1	W			
	Wedgetail	1	SW			
1209	Hancroft's sp	1	N			
1227	Sooty Tern	2	N	1 immature		
1245	Sooty Tern	100	± 25			
	Wedgetail	50	± 25			
1246	Bulwer's P	1	N			
1250	Bulwer's P	1	S			
1254	Bonapart's P	1	NW	Came close, fired, close but missed		
1256	Sooty Tern	3	NE			
1302	Wedgetail	1	E	seen by watch		
1312	Shear/petrel	1	S			
1316	Wedgetail	1	E	scoring well alone horizon but too far away		
1318	Dark-rumped P	1	SE			
1320	Sooty Tern	1		sitting in water - molting		
1335	Dark-rumped P	3				
	White-headed P	1				
	Petrel sp.	1				
1337	Wedgetail	4				
	Petrel sp	1				
1339	Dark-rumped P	1				
1340	Dark-rumped P	1				

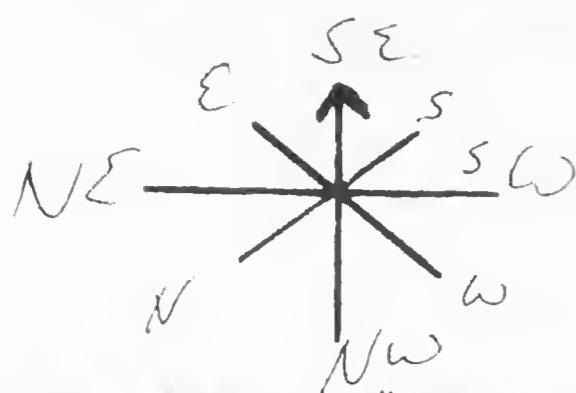


DATE 27 May 69
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1345	Sooty Tern Wedge-tail Shearwater	125	S	±25		
1350	Tropicbird sp.	50	S	±25		
1400	Wedge-tail	1				
1406	Shear/petrel	1				
1415	Sooty Shear	1				
1418	Sooty Tern	10	NW			
	Shear/petrel	10				
1425	Bulwers P.	1				
1426	Shear/petrel	1				
1428	Shear/petrel	3	W			
1430	Harcours S.A.	1	S			
1438	Wedge-tail	1	S		light	
1443	Bonin Is P.	1	NW			
1450	Bulwers P.	1	W		molting	
1458	Shear/petrel	1	W			
1525	Bulwers P.	1	S			
1535	Wedge-tail	1				
1553	Storm Petrel	1				
1643	DR Petrel	1	S			
1707	DR Petrel	1	W			
1715	DR Petrel	1	W			
	Bonin Is. P.	1	W			
1719	DR Petrel	1	SE			
1735	Bulwers P.	1	N			
1740	Shear/petrel	1				
1745	Wedge-tail	1	NW		light	
1750	Wedge-tail	2	S		light	
1805	Dark-rumped P.	1	NW			
1820	Dark-rumped P.	1			molting	
	Bonin Is. P.	1	SW			
1826	Wedge-tail	4	S		light	
1832	Dark-rumped P.	4			molting	
1835	Dark-rumped P.	1				
					1945 and 1965	

364
547
231
119*

26
11
11
24
414
7.06
1192



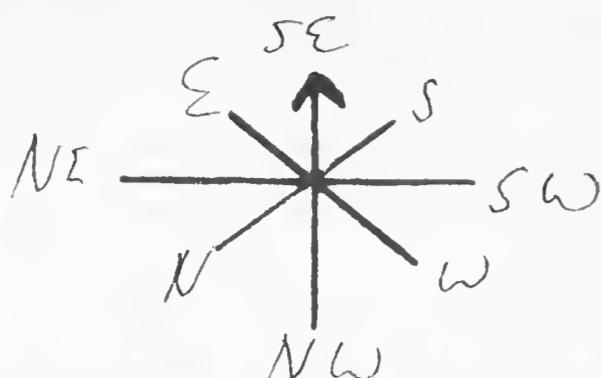
DATE 28 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0530	Shear/Petrel	1			seen by watch	
0540	begin observation					
0600	Shear/Petrel	3			seen by watch	
0620	Sooty Tern	1	NW			
0629	Dark-rumped P.	1	SE			
0632	White-headed P.	1				
	Wedge-tail	1	W		dark	
0638	Wedge-tail	1	S		dark	
0645	Shear/Petrel	2				
0716	Bonin Is Petrel	1	W			
0720	Bonin Is P.	1	W			
0754	Petrel/shear	1				
0804	Red-tailed Tropicb.	1			overhead - adult	
0811	DR Petrel	1	N			
0820	Bonin Is P.	1	NW			
	Shear Pet	1	NW			
0821	Red-T. Tropicb.	1	N		adult	
0840	DR Petrel	1	NW			
0845	Wedge-tail	1	S		dark	
0851	Harrier sp	1	SE			
0855	Petrel	1	NW			
0859	Petrel	1	SE			
0904	DR Petrel	1	NW			
	Wedge-tail	1	NW		dark	
0910	Bonin Is P	1	NW			
0915	Wedge-tail	2	SW		dark	
	Newell's S	1	SE			
0916	Wedge-tail	1	SE		dark	
0920	DR Petrel	1	S			
0923	DR Petrel	2	NW			
	Bonin Is P	1	NW			
0925	DR Petrel	1	SE			
0928	Harrier sp	2	SE			
0936	DR Petrel	1	S			
0940	DR Petrel	1	S			
0950	DR Petrel	3	S			
0958	Newell's S	1	NE		over water	
	Wedge-tail	1	SE		dark	
1000	Wedge-tail	20	SW		dark	
1005	Harrier	1				
1010	Harrier	1	NW			



DATE 28 May 64
Pg. # 2

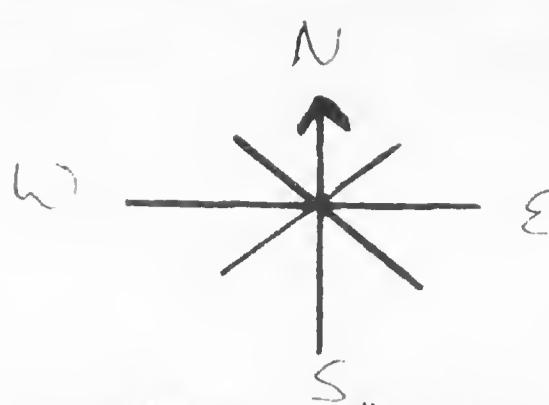
time	species	#	dir.	hgt.	remarks	loc.
1019	DR Petrel	1	SE			
1040	DR Petrel	1	W			
	Wedgetail	3	W		dark	
1041	Boobies P	1	W			
1054	W-N Petrel	1	NW			
1105	Wedgetail	30	±5		all dark	
	Dark-rumped P	12	±2		I fired upon by Bratley, but did not bring down	
	Sooty Tern	5				
	Newell's S.	1				
	Shear/petrel	2				
1115	Wedgetail	1			dark	
1136	Bulwer's P	1	NW		11	
1140	Dark-rumped P	1	SE			
	Wedgetail	1	SE		dark	
1155	Harcourt's SP	1				
1203	Boobies P	1	NW			
1211	Harcourt's SP	1	SE			
1212	Wedgetail	1	SW		dark	
1220	Harcourt's SP	1	SE		fired upon	
1225	Bonin Is P.	1	SE			
1238	Dark-rumped P	1	SE			
1315	D-R Petrel	1	NE			
1340	Shear/Pet	2			by watch	
1345	Shear/Pet	1			"	
1416	Sooty Tern	35	±2			
	Wedgetail	10	±2	NE	at least 1 immature	
	Dark-rumped P	2+			not feeding	
1456	Sooty Tern	75	±15			
	Wedgetail	20	±5			
	White-tailed P.	1				
	Shear/Petrel	4				
1518	Shear/petrel	1				
1522	Shear/petrel	1				



DATE 28 May 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1552	White-necked P.	1				
	Dark-rumped P.	1			sitting in water	
1553	Horscoats, SP	1				
1621	Wedgetail	1	SE		light!	
1626	Dark-rumped P.	1	SE			
1640	Dark-rumped P.	1	SE			
1645	Dark-rumped P.	1	E			
1705	Dark-rumped P.	1	SE			
1747	Bulwers P.	1	NE			
1806	Bonin Is. P.	1	NE			
1820	end observations					

$$\begin{array}{r} 31 \\ 97 \\ 19 \\ 37 \\ \hline 116 \\ \hline 300 \end{array}$$



DATE 29 May 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0515 begin observations

0515 DR Petrel 2 W

0525 Wedgetail 50

0526 Wedgetail 5 N

0535 Sooty Tern 11 N

0555 Wedgetail 4 N

0557 DR Petrel 1 S

0559 Wedgetail 2 Z

0602 DR Petrel 1 W

0606 Bonin Is P 1 W

0615 Sooty Tern 1 50

0623 Wedgetail 1 W

0630 Sooty Tern 40-50

Wedgetail 15-20

0631 DR Petrel 3 S

0634 Newell's 1 W

0637 Bonin Is P 1 W

0645 Wedgetail 1 SE

0730 Wedgetail 6 S

0740 W-T Tropicbird 1

0757 Bonin Is P 1 W

0800 Bonin Is P. 1 W

0800 Wedgetail 3 W

Dark-rumped P. 6 W

White-necked P. 1 W

White-rumped P. 1 W

0816 Petrel sp 1

0819 Dark-rumped P. 3 W

Wedgetail 1

Shearwater 1

0820 White-necked P. 1 W

Petrel sp 1 W

0828 Dark-rumped P. 1 SW

0840 Wedgetail 1 SW

0842 Petrel sp 2

0850 Dark-rumped P. 1 SW

0852 Wedgetail 11 -

0858 White-necked P. 1 SW

sitting - dark & light - watch
dark & light

dark

dark

} feeding flock

dark

scatter over 360° - dark
adult

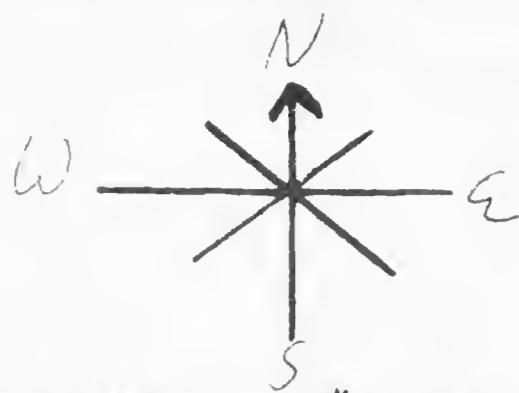
travelling flock

dark } travelling

W W or DR

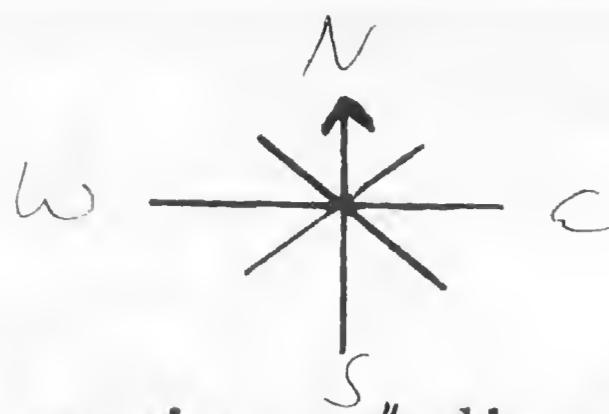
light

Setting in water
sitting on water



DATE 29 May 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
0855	White-necked P	1	W			
0902	Petrel sp.	1	W			
0905	Bulwer's P	1	W			
	Bonin Is P.	1	W			
0907	Dark-rumped P	2				
	White-necked P	1	W		} travelling	
	Bonin Is P.	1				
0910	Shear/petrel	1	E		sitting on water	
0913	White-necked P	1	W			
0920	Wedge-tail	1	WS		dark	
	Bonin Is P.	1				
0925	Wedge-tail	2			dark	
0926	Dark-rumped P	1	W			
	White-necked P	1			sitting in water	
0928	Shear/petrel	1	E			
0935	Dark-rumped P	1	NE			
	Newell's S.	1				
0950	White-necked P	1	W			
	Petrel sp.	1				
0958	Wedge-tail	1	E		dark	
1000	Wedge-tail	1	NW		dark	
	Dark-rumped P	1	NW			
1014	Dark-Rumped	1	S			
1015	Shear/Petrel	1				
1030	Dark-Rumped	3	N			
1103	Dark-Rumped	10				
	Wedge-tail	2	(dark)		} small feeding flock	
1109	Dark-Rumped	2	W			
1201	White-necked P	1	SW			
1240	Bulwer's Petrel	1	W			
1248	Sooty Tern	2	S			
	Wedge-tail	10				
	Dark-rumped P	12	N			
	White-necked P	2				
	Newell's S.	1				
					dark	
					travelling - some sat in water	



DATE 29 May 64
Pg. # 31

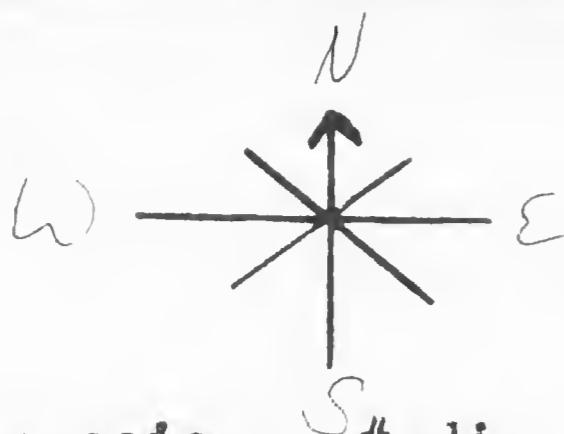
time	species	#	dir.	hgt.	remarks	loc.
1306	Sooty Tern	200	± 50			
	Shear/petrel	70	± 20			
	Newell's S	1+				
	Bulwers P.	1+				
	Wedge-tail	1+				
	Dark-rumped P.	2+				
	Stejneger's Petrel					
1315	Bulwers P	1	NW			
1320	Sooty Tern	2	NE			
1321	Bulwers P.	1	NW		Immature	
1324	Dark-rumped P	1	N			
1331	Bulwers P	1	NW			
1332	Bonin Is. P.	1	NW			
1335	White-nosed P.	1	SE			
1342	Wedge-tail	1	S			
1349	Dark-rumped P	1	S			
1400	Bulwers P.	1	S			
1416	Wedge-tail	1	NW			
1425	Sooty Tern	1			dark	
1428	Bonin Is. P.	1	W			
1520	Wedge-tail	1	S		sitting on water	
1648	Wedge-tail	1	S		light	
1655	Wedge-tail	1	S		light	
	Sooty Tern	1	○		Q	
1705	Wedge-tail	3	E		light	
1732	Sooty Tern	50	± 25		feeding, then raising	
	Shearwater/petrel	25	± 15			
1827	R-T Tropicbird	1				
1830	end observation					

$$\begin{array}{r} 29 \\ 56 \\ 12 \\ 99 \\ 126 \\ \hline 321 \\ \hline 643 \end{array}$$

$$\begin{array}{r} 372 \\ 175 \\ 96 \\ \hline 643 \end{array}$$

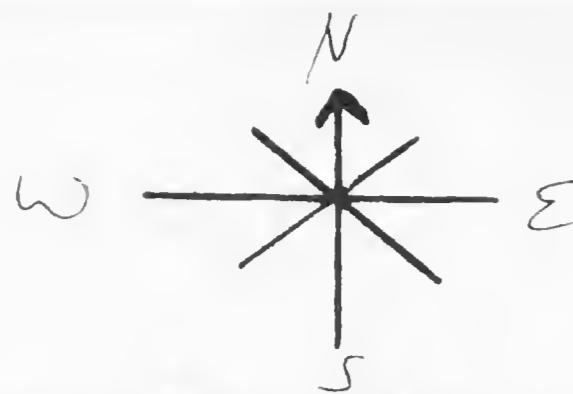
$$\begin{array}{r} 255 \\ 843 \\ \hline 000 \\ \hline 3 \end{array}$$

L1h
SL
SLi
Z1
SS



DATE 30 May 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0520	begin observations					
0525	Bonin Is P.	1	NE			
0546	Shear/petrel	1	W			
0554	Bonin Is P	2	SW		seen by watch	
0602	Bonin Is P	1	S			
0657	Wedge-tail	2	S			
0808	Bonin Is. P.	1	S		light	
0845	DR Petrel	1	S			
0932	Bonin Is. P.	1	N			
1226	Bonin Is. P.	1	W			
1238	Shear/Pet	1	W			
1417	Shear/Pet	1	W			
1500	Shear/petrel	1	SW			
1512	Shear/petrel	1	W			
1515	Bonin Is P	3	W			
1523	Shear/petrel	3	SW			
1605	Wedge-tail	1	S		dark	
1606	Harcourts S.P.	1	NW			
1623	Shear/Pet	1	W			
1635	D.R. Petrel	1	N			
1655	Shear/Pet	1	W			
1705	skua	1	SW		very large, near near body size, all dark except white at base of primaries on underwing. Very heavy & chunky, short black tail (dark than than rest of body). Short wings. Flew with slow stroke unlike any seabird we seen yet. Was sitting on water ahead of ship. When it flew, it went in SW direction. Mostly a skua or giant petrel of some sort.	
1725	Bulwer's P	1	W			
1814	Wedge-tail	3	S		light	
1845	end observations					

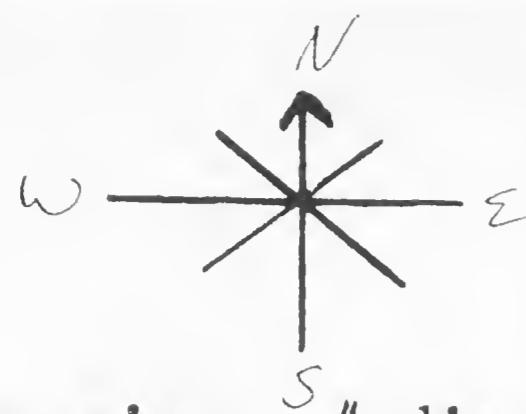


DATE 31 May 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0550	begin observations				
0553	Wedgetail	1	N		following ship - light
0607	Wedgetail	1	SW		light
0610	Bonin's P.	1	W		
0700	Wedgetail	2	N		
0720	W-T Tropicbird	1	NE		watch
0754	Bulwer's P	1	W		
0830	Wedgetail	1			light - Came aboard 0330 and caught by watch. Released.
0905	Petrel Sp	1	W		
0917	Shear/petrel	1	W		
1045	Haccouts	5			
1057	Wedgetail	1	N	(15ft)	{ all sitting in group upon water, when flushed they scattered.
1240	Wedgetail	1	N		light buzzed ship several times
1630	Haccouts	1	E		
1637	Wedgetail	1	N		light
1656	R-T Tropicbird	1	E		adult - very pink
1659	Wedgetail	1	S		light
1815	Sooty Tern	1	SW		
1835	end observations				

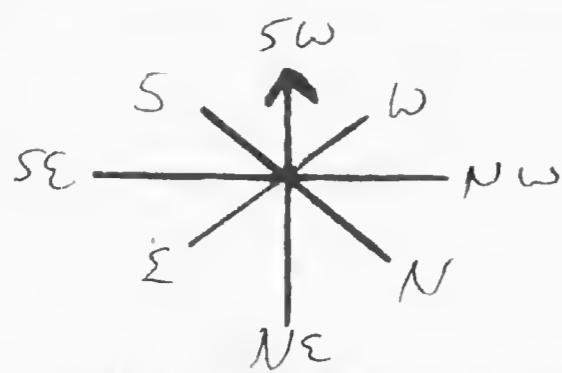


DATE 1 June 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0515	begin observations				
0638	Shearwater/ petrel	1	NW		sat on water
0805	D-R Petrel	1	N		<u>not</u> molting
0823	Sooty Tern?	1	N		by watch
0942	R-T Tropicbird	1	N		adult
1045	Wedgetail	1	S		adult
1235	RT Tropicbird	1	E		adult
1507	Tropicbird	1			sat in water
1750	Harcours	1	W		
1800	B-F albatross	1			following ship
1845	end observations				

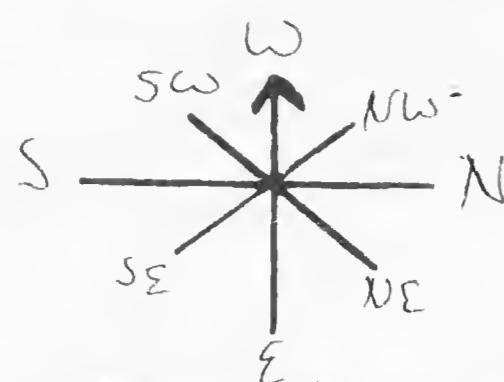


DATE 2 June 64
Pg. # 1

time species # dir. hgt. remarks

loc.

0445	begin observations				
0446	B-F. Albatross	1			following ship — different bird than one sighted last night; lacks the white rump of yesterday's bird
0500	R-T. Tropicbird	1	SE		adult
0745	Shearwater	1			seen by watch
0951	Harcourt's S.P.	1			
1007	Wedgetail	2	SW		light
1045	Bulwer's P.	1	S		
1125	Bulwer's P.	1	NW		
1135	R-T. Tropicbird	1	SW		without relatives
1246	Harcourt's S.P.	4			sitting on + flying over small oil slick
1302	Bulwer's P.	1	NE		
1318	Bulwer's P.	1			sitting by glass ball
1504	Bulwer's P.	1	W		
1527	Bulwer's P.	1	NE		flapping constantly against wind
1655	Bulwer's P.	1	SE		
1754	Wedgetail	4	NE		light
1755	Black-footed A.	1			all day
1816	Dark-rumped P.	1	NE		
1841	Tropicbird sp.	1	SW		not molting
1850	end observations				

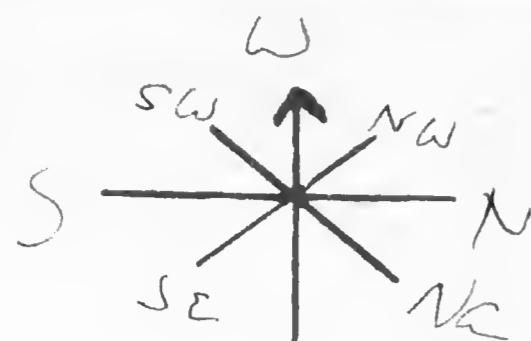


DATE 3 June 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0520	Sooty Tern	1				
	Shearwater/petrel	1				
0535	begin observations				seen by watch	
0647	shear/petrel	1				
0650	Black-footed					
	Albatross?	1				
0707	Wedge-tail	1		5		
0716	Sooty Tern	2	W		light	
0717	Harcourt Sp.	2	N			
0734	Wedge-tail	1	E		light	
0740	White-t. Tropicbird	1			sitting water	
0745	Sooty Tern	1	SE			
0808	Sooty Tern	2	E		adult	
0825	Sooty Tern	4	E		{ small flock	
	Shear/petrel	2	E			
0845	W-T. Tropicbird	1	NW		adult flushed from water	
0911	Shear/petrel	1	S		watch	
0914	Newell's S.	1	N			
0923	Bulwer's P.	1	NW			
0959	Sooty Tern	2	E			
1015	Sooty Tern	3	W			
1016	Shear/petrel	1	N			
1030	Sooty Tern	2	NE		1 immature	
1039	Wedge-tail	1	W		following ship, light	
1040	Sooty Tern	5			scattered	
1044	Harcourt Sp	1	NW			
1105	Sooty Tern	1	E			
1109	Dark-rumped P	1	N		not molting	
1120	Sooty Tern	1	N			
1136	Sooty Tern	2	E			
1137	Wedge-tail	1			light	
1140	Brown Boob?	1	N			
1144	Sooty Tern	2	E			
1149	White-tailed Tb.	1	NW		sitting water	
1200	Bulwer's P.	61	E			

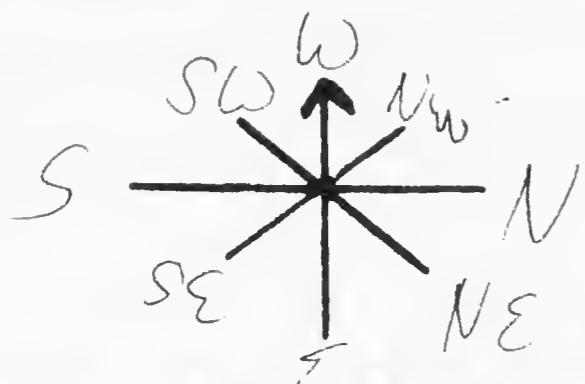
239
63
50
—
352

33
82
50
187
—
352



DATE 3 June 67
Pg. # 2

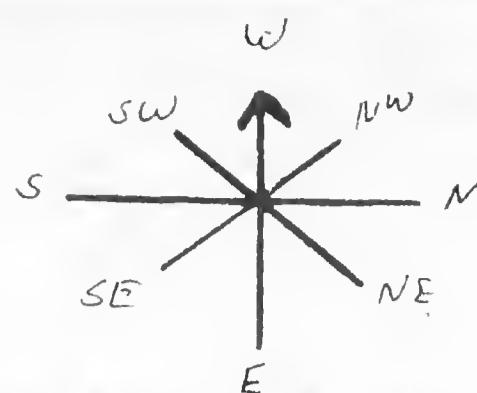
time	species	#	dir.	hgt.	remarks	loc.
1207	Wedge-tail	1	W		light	
1208	Frigate	1	R	200ft	adult male	
1209	Wedge-tail	2	S		light	
1212	Tropicbird sp.	1	D			
1214	Sooty Tern	8	S	300ft	circling <u>above</u> frigate 2 immatures, travelling	
1215	Black-footed A.	1			following 3 higs	
1216	Wedge-tail	1	W		light	
1225	Sooty Petrel	2				
1245	Tropicbird	1		200ft	♂ adult	
1303	Sooty Tern	16			travelling	
1312	Tropicbird	1				
1325	Tropicbird	1				
1350	Wedge-tail	1	NE			
1355	Nanellis	2	S		dark	
1430	B-Fulmar	2				
1431	Wedge-tail	50	60			
	Sooty Tern	8	-	12	3 feeding flock	
1442	Wedge-tail	1	W		light	
1454	Nanellis s.	1	S			
1457	Wedge-tail s.	2	3			
1458	Red-tailed TB	1	C			
1500	Bulwer's P	1	C		adult with long retrices	
1506	Bulwer's P	1	S			
1535	Sooty Tern	2	W		fixed at but no hits although bird shot self	
1537	Bulwer's P.	1	C	150ft	soaring, then dived down, + passed ship inward	
1555	Black-footed A.	3			Passed under bow	1 immature
1608	Sooty Tern	3	NE			
1645	Sooty Tern	80	± 20			
	shearwater/ petrel	40	± 20		feeding flock	
1630	Sooty Tern	7				
	shearwater/ petrel	4			small feeding flock	
1705	Sooty Tern	8			small travelling flock at least 2 immature	



DATE 3 June 84
Pg. # 3

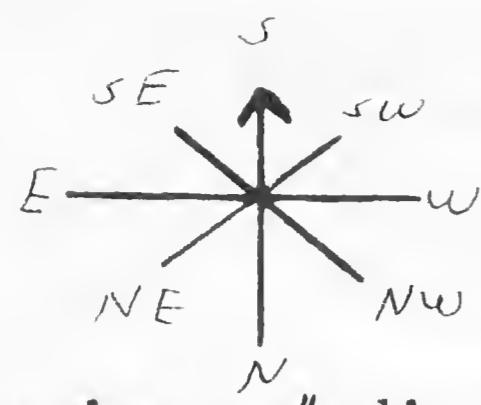
time species # dir. hgt. remarks loc.

1712	Sooty Tern	1			seen by watch	
1720	Sooty Tern	1	SE			
1750	Sooty Tern Wedgetail	30 ± 5 20 ± 5			one dark } feeding flock	
1800	Sooty Tern Sooty Petrel	4	N			
1815	Blue-faced Booby	1	W			
1853	W-T Tropicbird	1	NE		no retrices, but black markings in wings & back	
1857	Sooty Tern	1	SW			
1900	Black-footed Albatross	2			60°	
1910	end observations					



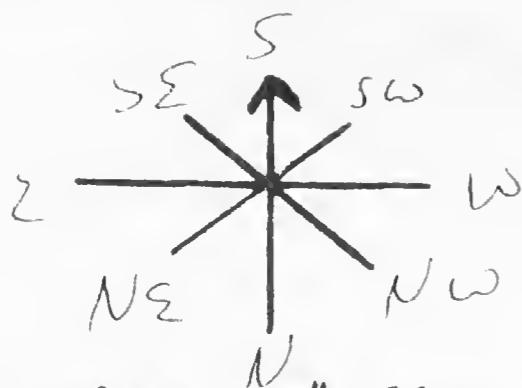
DATE 4 June 64
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0520	Newell's S	1			by watch	
0525	Bulwer's T	1			by watch	
0555	begin observation					
0556	B B-F Albatross	3			following ship	
0602	Sooty Tern	1	E		adult	
0630	Bonin Is. P?	1			watch	
0655	Wedgetail	2	SE		both dark	
0713	Dr R Petrel?	1	N			
	Blue-faced Boobies					
0745	R-T Tropicbird	2	S			
0750	R-T Tropicbird	2	NE			
0753	Bulwer's P	1	S			
0800	6 Harcourt's SP.	2	N			
0802	Wedgetail	1	SW			
0805	Sooty Tern	1	→			
0817	Sooty Tern	2	S			
0828	Newell's S	1	SW			
0830	Black-footed Albatross	4				
	Albatross				following ship	
0842	Harcourt's SP.	1	SE			
0850	Sooty Tern	1	W			
0855	Red-footed Booby	1	NW		juvenile	
0857	Sooty Tern	15 ± 2				
0902	Black-footed A.	5			small feeding flock	
1020	Sooty Tern	1	NE		in water around ship during hydro	
1033	Tropicbird	1			adult	
1038	R-T Tropicbird	1	S			
1044	Bulwer's P	1	SE			
1046	R-T Tropicbird	3	Σ		adult	
1107	Wedgetail	1	NE		light	
1114	Christ Is. S.	1	N			
1124	Sooty Tern	2	W			



DATE 4 June 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1145	R-T. Tropicbird	1	E			
1203	R-T Tropicbird	1	S			
1206	Wedgetail	1	NW		light	
1245	Bulwer's Petrel	2	S			
1305	Bulwer's P.	1	SW			
1321	Red-tailed T.b.	2	SW ⁹			
1337	Wedgetail	3	E			
1342	Harcourt's SP.	2	W		light	
1355	Black-faced A.	7				
1356	Bulwer's P	2				
1414	Wedgetail	1	N		light	
1428	Wedgetail	2	S			
1438	Sooty Tern	1			light following shps	
1441	White-tailed TB	1	N			
1442	Wedgetail	1			joined 3 behind shps	
1448	Bulwer's Petrel	1	SW ⁵			
1451	Bulwer's Petrel	1	W			
1503	Bulwer's P	1	E			
	Wedgetail	1	N			
1504	Sooty Tern	4	N			
1505	Bulwer's P	2	S			
1515	Bulwer's P	1	W			
1525	Newell's S	1	W			
1526	Sooty Tern	2	S			
1535	Bulwer's P	1	W			
1545	Sooty Tern	3	S		following ship - joined other 3, now 5	
1552	Wedgetail	2			" "	
	Bulwer's	1				
1605	Newell's S	1	E			
1650	Newell's S	2	3			
1655	Sooty Tern	3	8			
1657	Sooty Tern	3	8			
1711	Harcourt's	1	N			
1720	Sooty Tern	2	N			
1737	Sooty Tern	3	NW			



DATE 4 June 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
1745	Sooty Tern	1	N			
1746	Newell's S.	1	W			
1748	Wedge-tail	1	SE		light	
1758	White-tailed T.B.	1	SE		soaring on water	
1759	Newell's S.	1	N			
1800	sooty tern	1	NE			
1801	Shearwater/ petrel	1	W			
1805	Sooty Tern	3	N			
1806	Shear/petrel	1				
1810	bird	1	SW			
1815	Albatross S.P.	1			larger white? seen by watch	
1816	wedge-tail	1			joined buddy behind ship	
1817	Bulwer's P	1	W			
1825	Sooty Tern	1	E			
1837	Bulwer's P.	1	W			
1847	Sooty Tern	1	⑨			
1854	Sooty Tern	1	SW			
1900	Black-bellied Albatross				Banded 757-60904	
1905	Sooty Tern	1				
1908	Sooty Tern	1				
1910	Black-bellied A.	2				
1915	end observations	6				

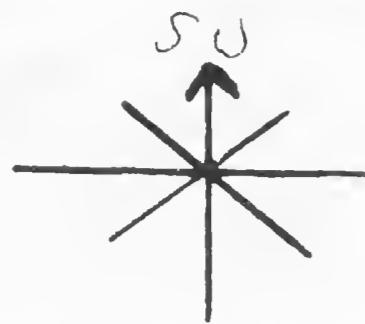
$$\begin{array}{r} 32 \\ 18 \\ + 18 \\ \hline 50 \\ \hline 126 \end{array}$$



DATE 5 June 64
Pg. # 1

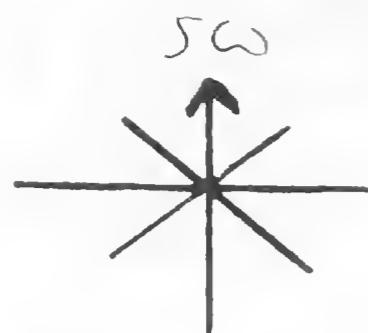
time species # dir. hgt. remarks loc.

0555	begin observations					
0600	Newells S.	1				
0602	Sooty Tern	1				
0616	Red-footed B	1	N		adult	
0617	Sooty Tern	6	N		scattered	
0618	Noddy Tern	2	N			
0619	Wedgetail	1	N			
	B. BOP					
0620	B. BOP	1	N			
0621	Sooty Tern	2	N			
0621	Noddy Tern	1	N			
0622	Wedgetail	1	N			
0625	Sooty Tern	75	± 15		flight	
	Wedgetail	35	± 15		feeding	
	Newell's S.	1				
	Red-footed B.	6			adult	
0626	Redfooted B	4	N			
0631	Red-footed B	6	N		adult	
0638	Redfooted B.	6	N		scattered	
0639	Sooty Tern	50	± 10			
	Wedgetail	10	—		feeding	
	Red-footed B	4				
	Newell's S	2				
	Noddy Tern	25	± 5			
0649	Frigate	1				
	Red-footed B	1			feeding	
	Sooty Tern	1	NE			
	Noddy T	1				
0656	Sooty Tern	75				
	Noddy Tern	30				
	Red-footed B.	10			feeding	
	Wedgetail	10				
0651	Sooty Tern	100				
	Noddy Tern	25				
	Wedgetail	15			feeding	
	Red-footed B.	10				
	Frigate	2				



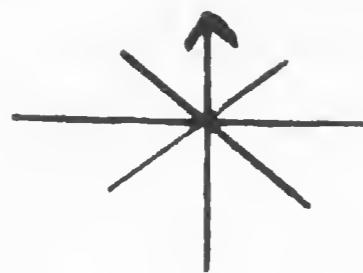
DATE 5 June 64
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
0701	Sooty Tern	50				
	Noddy Tern	25				
	Red-footed B	11				
	Wedge-tail	5			feeding	
0705	Sooty Tern	50				
	Noddy	25				
	Red-footed B	5				
	Novells	2				
	Wedge-tail	8			feeding	
0710	Sooty Tern	40				
	Noddy Tern	20				
	Red Foot B.	6				
	Wedge-tail	4				
	Fairy Tern	1				
0712	Red-footed B	4			sitting on water	
	Noddy Tern	1				
0715	Red-foot B	4				
	Noddy Tern	1				
	Sooty Tern	2			scattered	
0720	Sooty Tern	25				
	Noddy Tern	10				
	Wedge-tail	5				
0725	Sooty Tern	125				
	Noddy Tern	50				
	Red-footed B	10				
	Wedge-tail	15				
	Frigate	2				
0728	Red-footed B	1				
	Dark. n. gull	1				
	Fairy Tern	1			not molting	
0732	Sooty Tern	50				
	Noddy Tern	15				
	Wedge-tail	5				
	Red footed R	5				
						64



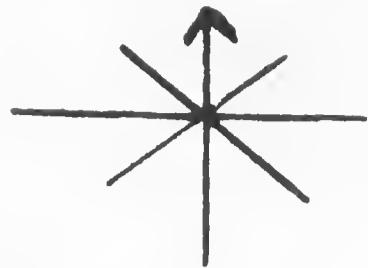
DATE 5 June 64
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
0740	Sooty Tern	20				
	Noddy Tern	5				
	Red foot B	1				
	Wedgetail	2			feeding	
0750	Frigate	1				
0758	Sooty Tern	4				
0807	Sooty Tern	20				
	Common Noddy	8			feeding	
	Wedgetail	20				
	Bulwer's P	1				
	R-F Booby	1				
0818	Wedgetail	1	IV			
	R-F Booby	1	NE			
0825	R-F Booby	2	N			
0835	Wedgetail	3	N			
	Bulwer's P	1	N			
0843	B-F Albatross	3			following ship	
	Wedgetail	1	N			
	Bulwer's P	1	S			
0850	Wedgetail	1	W			
	Newell's S	1	W			
0900	Sooty Tern	1	NW			
0907	Bulwer's P	2	N			
0917	Wedgetail	1	E			
0930	Sooty Tern	3	S			
	Wedgetail	1	NW			
0935	Gray-Backed Tern	2	SW		circled ship in mid-air, then headed SW - adults	
0945	Sooty Tern	2	.			
	R-F Booby	1	N			
0951	Bulwer's P	1	N			
	Brown Booby	1	W			
	Sooty Tern	4	W			
0958	Wedgetail	1	SW			
	Bulwer's P	1	S			
	Common Noddy	4	N			
1007	Brown Booby	1	E			
	Sooty Tern	4				
	Common Noddy	1	N			
1012	Sooty Tern	3	W			
1017	Bulwer's P	2	W			
	Hawaiian Noddy	1	W			
1021	Sooty Tern	3	W			
	Noddy Tern	1	E			



DATE 5 June 64
Pg. # 4

time	species	#	dir.	hgt.	remarks	loc.
1025	Noddy Tern	2	W			
	Sooty Tern	2	W			
1026	Tropicbird sp	1			seen by watch, sitting on water	
1032	Bulwer's P	1	W			
	Noddy Tern	1	(W)			
	Wedgetail	1	E			
	Newell's S.	1	(W)			
1035	Red-footed B	2	E			
1042	Newell's S.	1	(W)			
1046	Sooty Tern	29			Loose flock - travelling	
1049	Bulwer's P	1	E			
1050	Sooty Tern	2	W			
1055	Sooty Tern	1	(W)			
	Noddy Tern	1	E			
1057	Sooty Tern	2	NW			
	Noddy Tern	1	SC			
1100	Sooty Tern	6	NW			
1102	Noddy Tern	8	SE			
	Sooty Tern	1	NW			
	Wedgetail Shear.	3	S		Flight	
1110	Noddy Tern	5	S			
1117	Sooty Tern	3	N			
	Noddy Tern	6	N+S			
	Hawaiian Noddy	1	SW			
1128	Noddy Tern	1	S			
1130	Sooty Tern	6	S			
	Noddy Tern	4	N			
1135	Sooty Tern	1	N			
1146	Sooty Tern	3	N			
	Noddy Tern	2	N			



DATE 5 June 64
Pg. # 5

time species # dir. hgt. remarks loc.

1150	Sooty Tern	4	SE		
1155	Sooty Tern	6	SE		
	Com. Noddy	1	E		
1200	Sooty Tern	1	SE		
1203	Wedgetail	2	SE		
1209	Sooty Tern	2	SE		
	Common Noddy	1	NE		
1214	Com. Noddy	8	SE		
1220	Sooty Tern	8	SE		
1230	end observation				

58
11
120
50
—
239

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE 17 May 64

Time at sunrise = ⁰⁸⁰⁰ Position at sunrise = $20^{\circ}54'N$ $156^{\circ}28'W$

Time at sunset = ¹⁸⁵⁷ Position at sunset = $19^{\circ}54'N$ $157^{\circ}00'W$

Miles traveled from 0000 hours to sunrise = —

Miles traveled from sunrise to sunset = 105

Miles traveled from sunset to 2400 hours = 54

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 18 May 64

Time at sunrise = ⁰⁵⁵⁶ Position at sunrise = $17^{\circ}58'N$ $157^{\circ}01'W$

Time at sunset = ¹⁸⁵¹ Position at sunset = $15^{\circ}47'N$ $157^{\circ}00'W$

Miles traveled from 0000 hours to sunrise = 62

Miles traveled from sunrise to sunset = 131

Miles traveled from sunset to 2400 hours = 56

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 19 May 64

Time at sunrise 0559 Position at sunrise = $14^{\circ}07'N 156^{\circ}59'W$

Time at sunset 1846 Position at sunset = $11^{\circ}52'N 157^{\circ}02'W$

Miles traveled from 0000 hours to sunrise = 44

Miles traveled from sunrise to sunset = 135

Miles traveled from sunset to 2400 hours = 47

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 20 May 64

Time at sunrise 0559 Position at sunrise = $10^{\circ}55'N 155^{\circ}47'W$

Time at sunset 1831 Position at sunset = $10^{\circ}06'N 154^{\circ}30'W$

Miles traveled from 0000 hours to sunrise = 55

Miles traveled from sunrise to sunset = 124

Miles traveled from sunset to 2400 hours = 60

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 21 May 64

Time at sunrise 0551 Position at sunrise = $11^{\circ}59'N$ $153^{\circ}58'W$

Time at sunset 1839 Position at sunset = $14^{\circ}10'N$ $154^{\circ}01'W$

Miles traveled from 0000 hours to sunrise = 53

Miles traveled from sunrise to sunset = 131

Miles traveled from sunset to 2400 hours = 36

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 22. May 64

Time at sunrise 0546 Position at sunrise = $15^{\circ}50'N$ $154^{\circ}00'W$

Time at sunset 1845 Position at sunset = $17^{\circ}51'N$ $154^{\circ}00'W$

Miles traveled from 0000 hours to sunrise = 64

Miles traveled from sunrise to sunset = 123

Miles traveled from sunset to 2400 hours = 55

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 23 May 64

Time at sunrise = Position at sunrise = $19^{\circ} 38' N$ $154^{\circ} 00' W$

Time at sunset ¹⁸⁵¹ = Position at sunset = $21^{\circ} 54' N$ $154^{\circ} 01' W$

Miles traveled from 0000 hours to sunrise = 50

Miles traveled from sunrise to sunset = 136

Miles traveled from sunset to 2400 hours = 36

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 24 May 64

Time at sunrise = Position at sunrise = $23^{\circ} 30' N$ $154^{\circ} 00' W$

Time at sunset ¹⁸⁴⁸ = Position at sunset = $23^{\circ} 29' N$ $151^{\circ} 56' W$

Miles traveled from 0000 hours to sunrise = 60

Miles traveled from sunrise to sunset = 124

Miles traveled from sunset to 2400 hours = 49

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 25 May 64

Time at sunrise 0522 Position at sunrise = 22°48'N 150°58'W

Time at sunset 1837 Position at sunset = 20°30'N 151°08'W

Miles traveled from 0000 hours to sunrise = 49

Miles traveled from sunrise to sunset = 138

Miles traveled from sunset to 2400 hours = 40

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 26 May 64

Time at sunrise 0527 Position at sunrise = 18°55'N 151°02'W

Time at sunset 1832 Position at sunset = 16°42'N 150°57'W

Miles traveled from 0000 hours to sunrise = 55

Miles traveled from sunrise to sunset = 133

Miles traveled from sunset to 2400 hours = 44

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE 27 May 64

Time at sunrise = ⁰⁵³³ Position at sunrise = ^{14°51' N 151°01' W}
Time at sunset = ¹⁸²⁵ Position at sunset = ^{12°42' N 150°59' W}
Miles traveled from 0000 hours to sunrise = ⁶⁷
Miles traveled from sunrise to sunset = ¹²⁹
Miles traveled from sunset to 2400 hours = ⁵⁹

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 28 May 64

Time at sunrise = ⁰⁵³⁸ Position at sunrise = ^{11°11' N 150°34' W}
Time at sunset = ¹⁸¹⁰ Position at sunset = ^{10°16' N 149°30' W}
Miles traveled from 0000 hours to sunrise = ⁶⁹
Miles traveled from sunrise to sunset = ¹³³
Miles traveled from sunset to 2400 hours = ⁴⁴

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 29 May 64

Time at sunrise = ⁰⁵²⁸ Position at sunrise = $11^{\circ} 26' N$ $148^{\circ} 02' W$

Time at sunset = ¹⁸¹⁴ Position at sunset = $13^{\circ} 21' N$ $148^{\circ} 02' W$

Miles traveled from 0000 hours to sunrise = 62

Miles traveled from sunrise to sunset = 115

Miles traveled from sunset to 2400 hours = 62

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 30 May 64

Time at sunrise = ⁰⁵²¹ Position at sunrise = $15^{\circ} 12' N$ $147^{\circ} 54' W$

Time at sunset = ¹⁸²² Position at sunset = $17^{\circ} 31' N$ $148^{\circ} 04' W$

Miles traveled from 0000 hours to sunrise = 49

Miles traveled from sunrise to sunset = 139

Miles traveled from sunset to 2400 hours = 52

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART B

DATE 31 May 64

Time at sunrise 0514 Position at sunrise = $19^{\circ}10'N$ $147^{\circ}57'W$

Time at sunset 1828 Position at sunset = $20^{\circ}30'N$ $147^{\circ}58'W$

Miles traveled from 0000 hours to sunrise = 47

Miles traveled from sunrise to sunset = 80

Miles traveled from sunset to 2400 hours = 55

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 1 June 64

Time at sunrise 0508 Position at sunrise = $22^{\circ}10'N$ $147^{\circ}58'W$

Time at sunset 1836 Position at sunset = $24^{\circ}40'N$ $148^{\circ}00'W$

Miles traveled from 0000 hours to sunrise = 45

Miles traveled from sunrise to sunset = 150

Miles traveled from sunset to 2400 hours = 41

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

SI-MNH-955b
3-4-64.

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 2 June 64

Time at sunrise = ⁰⁴⁵⁹ Position at sunrise = $26^{\circ}20'N\ 147^{\circ}53'W$

Time at sunset = ¹⁸⁴⁷ Position at sunset = $25^{\circ}24'N\ 150^{\circ}10'W$

Miles traveled from 0000 hours to sunrise = 59

Miles traveled from sunrise to sunset = 150

Miles traveled from sunset to 2400 hours = 52

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 3 June 64

Time at sunrise = ⁰⁵¹⁷ Position at sunrise = $24^{\circ}59'N\ 151^{\circ}0'W$

Time at sunset = ¹⁹⁰³ Position at sunset = $24^{\circ}56'N\ 154^{\circ}00'W$
 $24^{\circ}58'N\ 154^{\circ}26'W$

Miles traveled from 0000 hours to sunrise = 50

Miles traveled from sunrise to sunset = 130

Miles traveled from sunset to 2400 hours = 78

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

SI-MNH-955b
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 4 June 64

Time at sunrise = ⁰⁵³⁵ Position at sunrise = $25^{\circ}00'N$ $156^{\circ}22'W$

Time at sunset = ¹⁹¹¹ Position at sunset = $23^{\circ}30'N$ $156^{\circ}58'W$

Miles traveled from 0000 hours to sunrise = 64

Miles traveled from sunrise to sunset = 128

Miles traveled from sunset to 2400 hours = 41

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 5 June 64

Time at sunrise = ⁰⁵⁴⁴ Position at sunrise = $25^{\circ}00'N$ $157^{\circ}32'W$

Time at sunset = ¹²⁰⁰ Position at sunset = $21^{\circ}18'N$ $157^{\circ}52'W$

Miles traveled from 0000 hours to sunrise = 49

Miles traveled from sunrise to sunset = 73

Miles traveled from sunset to 2400 hours = —

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

B. C. F. Townsend Cromwell May 1964 Cruise

The May 1964 Townsend Cromwell cruise was the fourth of a series of cruises run by the U. S. Fish and Wildlife Bureau of Commercial Fisheries covering a fixed grid to the east of the main Hawaiian Islands for the purpose of determining the variations in structure of the water masses and currents of this area. The cruise started 17 May 64 and ended 5 June 64, covering approximately 4600 miles in 20 days.

Pacific Project personnel maintained daily sunrise to sunset bird observations for a total of 253.1 hours. In addition Project personnel aided in recording weather observations and in taking bathythermograph traces. Project personnel included David Bratley and Warren King.

Upon availability of oceanographic data, an attempt will be made to correlate bird distribution with prevalent oceanographic conditions of the cruise.

SPECIES ACCOUNT

Black-footed Albatross

Numbers of this species dropped 46% from 37 in April to 20 in May. This decline in numbers was accompanied by a northward trend in distribution. The southern limit of the range of this species seems to coincide with the convergence area between the North Pacific Central Water and the California Current Extension. One of this species was banded and released on 4 June 64.

Wedgetailed Shearwater

Numbers of this species rose from 352 in April to 1637 in May, an increase of 365%. Dark phase birds predominated south of 13°N this cruise, indicating a northward extension of the feeding grounds for the southern populations. In feeding flocks around Oahu, there were proportionately fewer Wedgetails than previous months, due probably to the beginning of egg laying in main Hawaiian Island colonies.

Sooty Shearwater

The last of 64 Sooty Shearwaters seen this month passed northwest on 27 May. Between 18 March and 27 May 1967 of this species were observed, all heading approximately northwest. Peak numbers were observed 3 April when 1337 were seen.

Christmas Island Shearwater

Two of this species were seen in the grid area this month, one north of Oahu and the other toward the southern end of the grid.

Newell's Shearwater

A sharp 45% increase from 12 in April to 66 in May was experienced this month due probably to the beginning of its breeding cycle in the ~~in~~ in Hawaiian Islands. This species was seen in all parts of the grid except the eastern portion. Concentrations were found around Oahu and across the southern portion of the grid. This species was observed frequently in small numbers in feeding flocks composed mainly of Sooty Terns and Wedgetailed Shearwaters.

Bonin Island Petrel

Numbers of this species rose abruptly from 2 in April to 69 in May, all but one of which were in the south to southeastern portions of the grid area. Virtually all of these birds were undergoing heavy molt. Several were flushed from the water by the approaching ship.

Herald's Petrel?

Two medium sized chunky petrels with brown upperparts, white underparts and mottled dark underwings were probably this species. Both birds were clearly seen at close range.

Dark-rumped Petrel

This species rose 67% in numbers, from 17 in April to 131 in May. All but 6 of these were in the southern portion of the grid area. All of these southern birds were undergoing heavy molt. Primary and secondary wing feathers were often missing and the entire dark upperparts were splotched and mottled. Many birds were flushed from the water by the approaching ship. The northern birds had without exception fresh plumage.

Since egg dates for Hawaii are thought to be April-May and for the Galapagos race June-July, it may be the case that the northern, fresh plumaged birds are the Hawaiian race and the southern, heavily molting birds are from the Galapagos Islands.

White-necked Petrel

Numbers of this species increased from three in April to 34 in May. All of these were seen in the southern end of the grid area. All were undergoing heavy molt. Many had missing primary and secondary wing feathers, and birds were flushed from the water by the approaching ship. This species was often seen in close company with molting Dark-rumped Petrels, sometimes two or three of each species sitting together on the water. This species was found in the southern feeding flocks along with molting Dark-rumped Petrels, dark phase Wedgetails and Sooty Terns.

Bulwer's Petrel

This species increased in number 53%, from 28 in April to 178 in May. Large concentrations of this species were found around Maui and Oahu. Small flocks of up to nine individuals were seen, and a number of birds were seen in and around the edges of feeding flocks of Sooty Terns and Wedgetailed Shearwaters, but none was observed feeding.

Harcourt's Storm Petrel

Numbers of this species showed a 50% decrease from 129 in April to 64 in May. This species still showed the relatively random distribution throughout the entire grid area it has exhibited in past months. On one occasion four birds were seen sitting on and flying over a slick.

Red-tailed Tropicbird

This species increased in number 25% from 7 in April to 25 in May. There was a minor concentration of these birds in the northwestern corner of the grid area, where on two occasions courtship flight was observed.

White-tailed Tropicbird

Numbers of this species increased 500% from 4 in April to 24 in May. Twelve of these were seen along the coast of Maui where the species is known to breed.

Blue-faced Booby

This species increased 125% from 4 in April to 9 in May. All were immature or sub-adult birds. All were seen in the southwest corner of the grid area.

Brown Booby

Two of this species were seen within sight of the coast of Oahu where it breeds.

Red-footed Booby

This species increased 52% from 71 in April to 108 in May. All but one of these were seen within 60 miles of Oahu where they breed. One bird, an immature, was seen in the northwest corner of the grid area.

Great Frigatebird

Eleven of this species were seen in the grid area, 2 at the southern end and the remaining 9 near Oahu, where they roost.

Grey-backed Tern

Two of this species were observed flying toward Moku Manu, where a small breeding colony is established.

Sooty Tern

This species increased 91% in numbers, from 1633 to 3117. As in past months concentrations of this species occurred near Oahu and in the southern portion of the grid area. On several occasions immature birds were observed in the company of adults, both in the north and south, since the immatures of Moku Manu, off Oahu are now all flying, in addition to the immatures of the southern populations.

Noddy Tern

This species increased 84% from 165 to 304. All of these were seen within 50 miles of Oahu or Maui. In feeding flocks to the north of Oahu they were in the proportion of one Noddy for every three Sooty Terns.

Hawaiian Noddy Tern

Seven of this species were seen in May, five within sight of Maui and two within sight of Oahu.

Fairy Tern

Seven of this species were seen in the grid area in May. The species was absent from the area in April. Five were seen in the southern portion of the grid and two were seen just north of Oahu.

Skua

Two birds, which could only be of this species, were observed in the grid area on 17 May and 30 May. Both birds were carefully observed at close range. This species is not unexpected as a stray in the central Pacific area.

Pomarine Jaeger

Two birds of this species were observed in the grid area on 19 May and 23 May, both heading north.

TABLE I

	Date	Minutes of Observation	Miles Covered
May	17	657	105
	18	775	131
	19	767	135
	20	752	124
	21	768	131
	22	779	123
	23	793	136
	24	798	124
	25	795	138
	26	785	133
	27	772	129
	28	752	133
	29	766	115
	30	781	139
	31	794	80
June	1	808	150
	2	828	150
	3	826	130
	4	816	128
	5	376	73
Total	20	15188	2507
Average		759.4	125.4

TABLE II

<u>Date</u>	<u>Total Birds</u>	<u>Total Sightings</u>	<u>Birds/Sighting</u>	<u>Birds/Mile</u>	<u>Total Flocks</u>	<u>Total Birds in Flocks</u>
May 17	619	105	5.80	5.80	8	472
18	320	41	7.80	2.44	6	269
19	410	78	5.13	3.04	9	315
20	583	78	7.47	4.70	7	489
21	29	25	1.16	.22	0	0
22	36	18	2.00	.29	3	20
23	93	31	3.00	.68	2	47
24	15	13	1.15	.12	0	0
25	7	7	1.00	.05	0	0
26	19	16	1.19	.14	0	0
27	1192	80	14.90	9.24	11	1093
28	300	65	4.62	2.26	5	223
29	643	72	8.93	5.51	12	560
30	31	23	1.35	.22	0	0
31	22	17	1.29	.28	1	5
June 1	9	9	1.00	.06	0	0
2	25	18	1.39	.17	0	0
3	325-352	65	5.42	2.71	9	272
4	136	78	1.74	1.06	1	15
5	1377	72	19.13	18.86	13	1136
Total						
20	6218	811	—	—	87	4916
Average	310.9	40.6	4.77	2.89	4.4	245.8

TABLE III

<u>Date</u>	<u>Procellariids</u>	<u>Tropicbirds</u>	<u>Terns</u>	<u>Boobies</u>	<u>Frigatebirds</u>
May	17	330	12	271	5
	18	160	2	158	0
	19	182	1	217	9
	20	291	3	280	3
	21	26	1	2	0
	22	22	2	12	0
	23	73	1	18	0
	24	14	0	1	0
	25	5	1	1	0
	26	19	0	0	0
	27	483	2	707	0
	28	182	2	116	0
	29	320	2	321	0
	30	30	0	0	0
June	31	19	2	1	0
	1	5	3	1	0
	2	22	3	0	0
	3	153	8	187	0
	4	63	16	55	1
	5	176	1	1090	6
Total	20	2575	62	3438	11
Average		128.8	3.1	171.9	.6

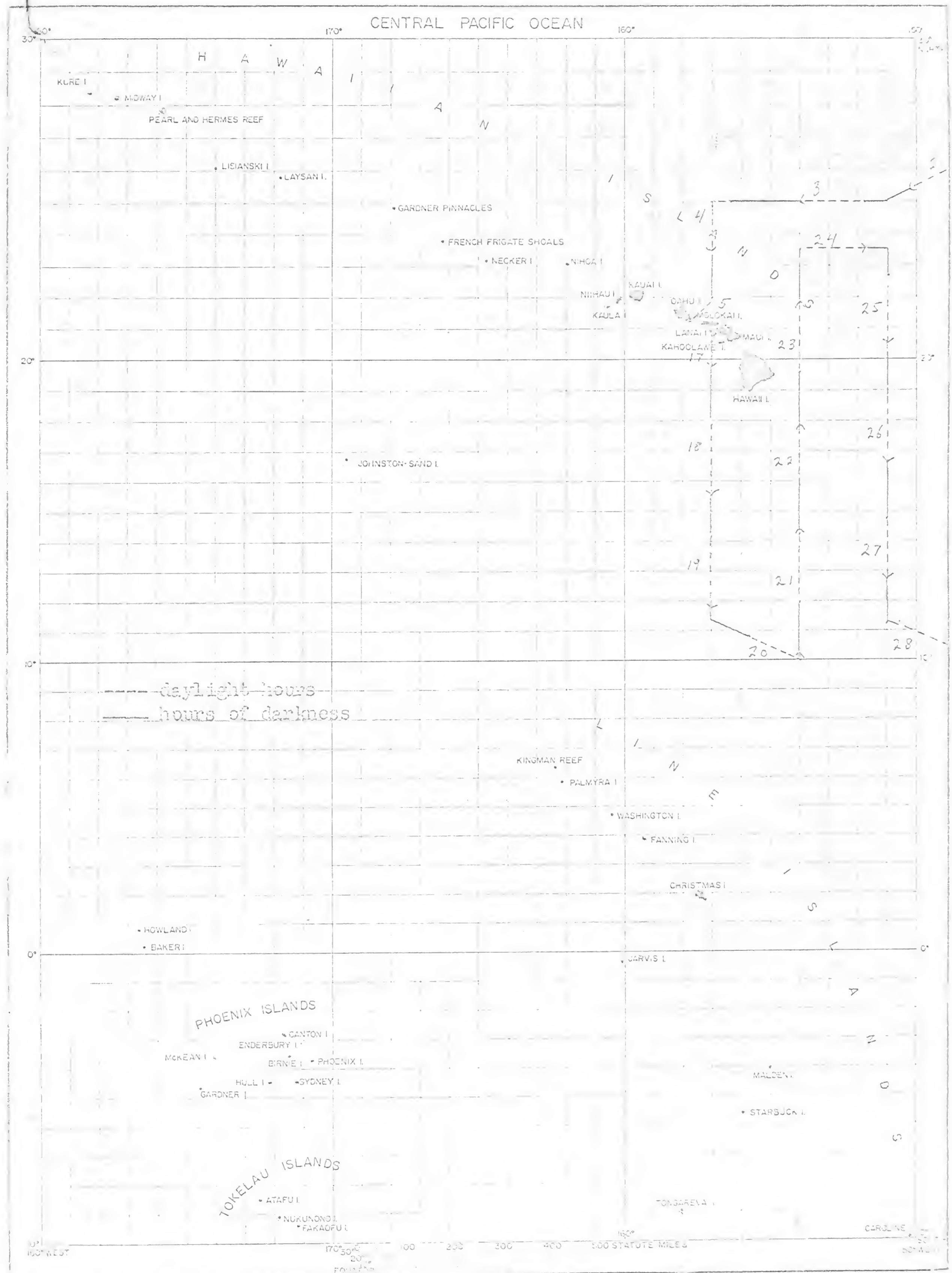
TABLE IV
PROCELLARIID BREAKDOWN

<u>Date</u>	<u>Black-footed Albatross</u>	<u>Wedgetail</u>	<u>Sooty Shearwater</u>	<u>Newell's Shearwater</u>	<u>Dark-Rumped Petrel</u>
May 17	0	229	5	9	1
18	0	123	9	2	0
19	1	58	23	14	1
20	0	235	0	9	3
21	0	2	1	1	1
22	0	10	0	1	0
23	0	61	2	1	0
24	3	3	2	0	1
25	0	0	1	1	0
26	0	6	0	0	1
27	0	414	1	0	24
28	0	97	0	34	37
29	0	126	0	40	56
30	0	6	0	0	2
31	0	9	0	0	0
June 1	1	1	0	0	1
2	2	6	0	0	1
3	3	82	0	48	1
4	7	18	0	8	0
5	3	151	0	9	1
Total	20	1637	14	66	131
Average	1	81.9	2.2	3.3	6.6

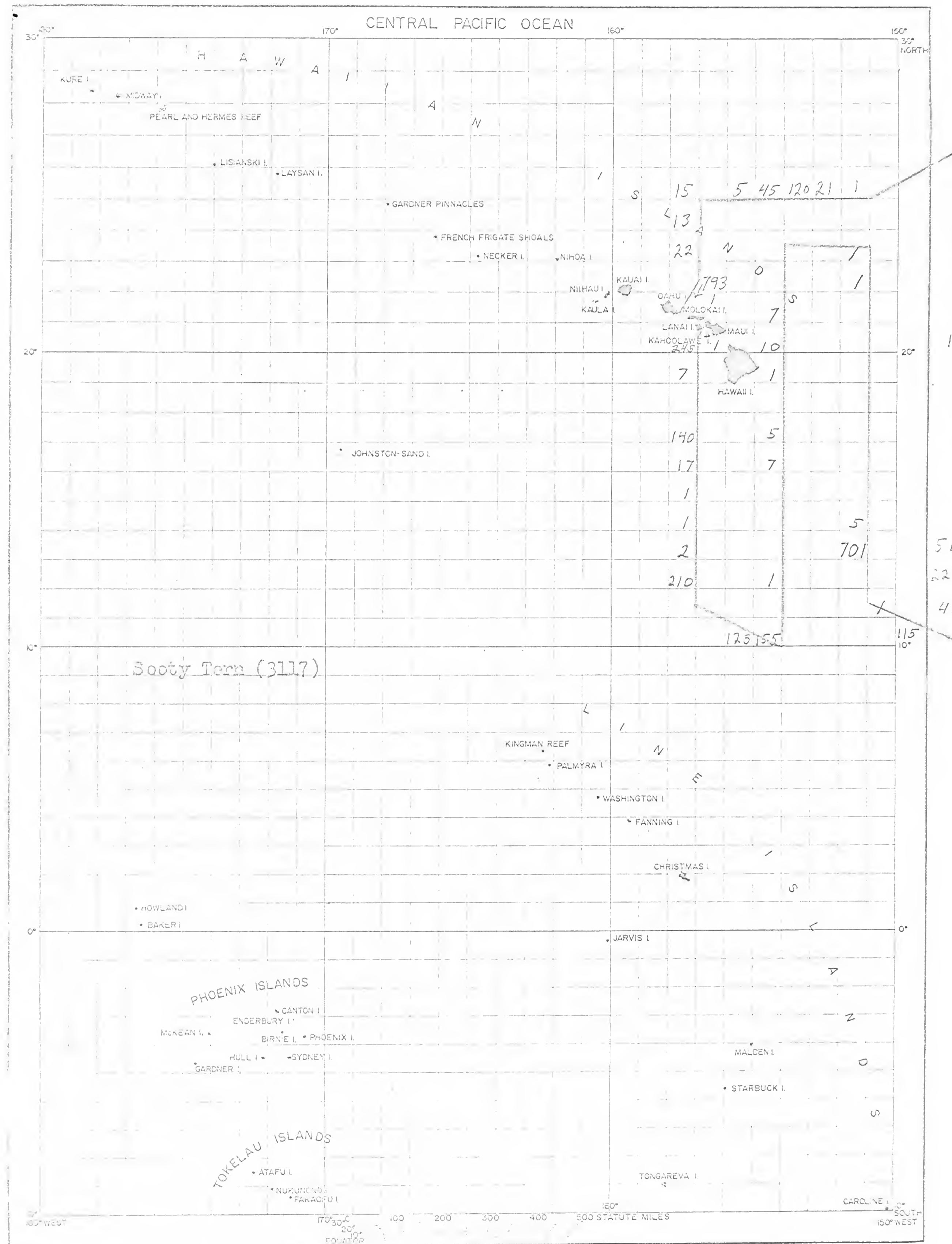
TABLE IV (continued)

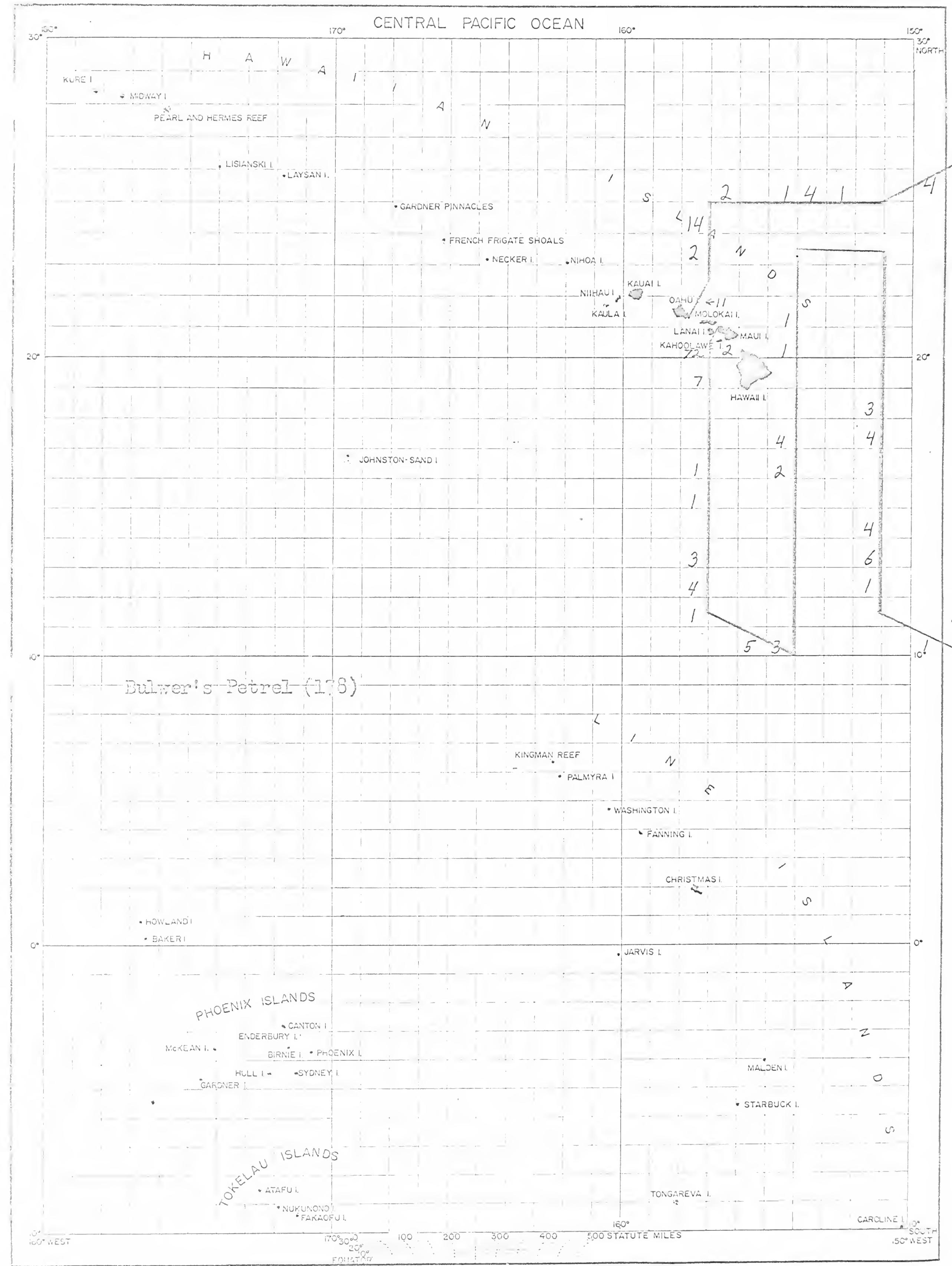
PROCELLARIID BREAKDOWN

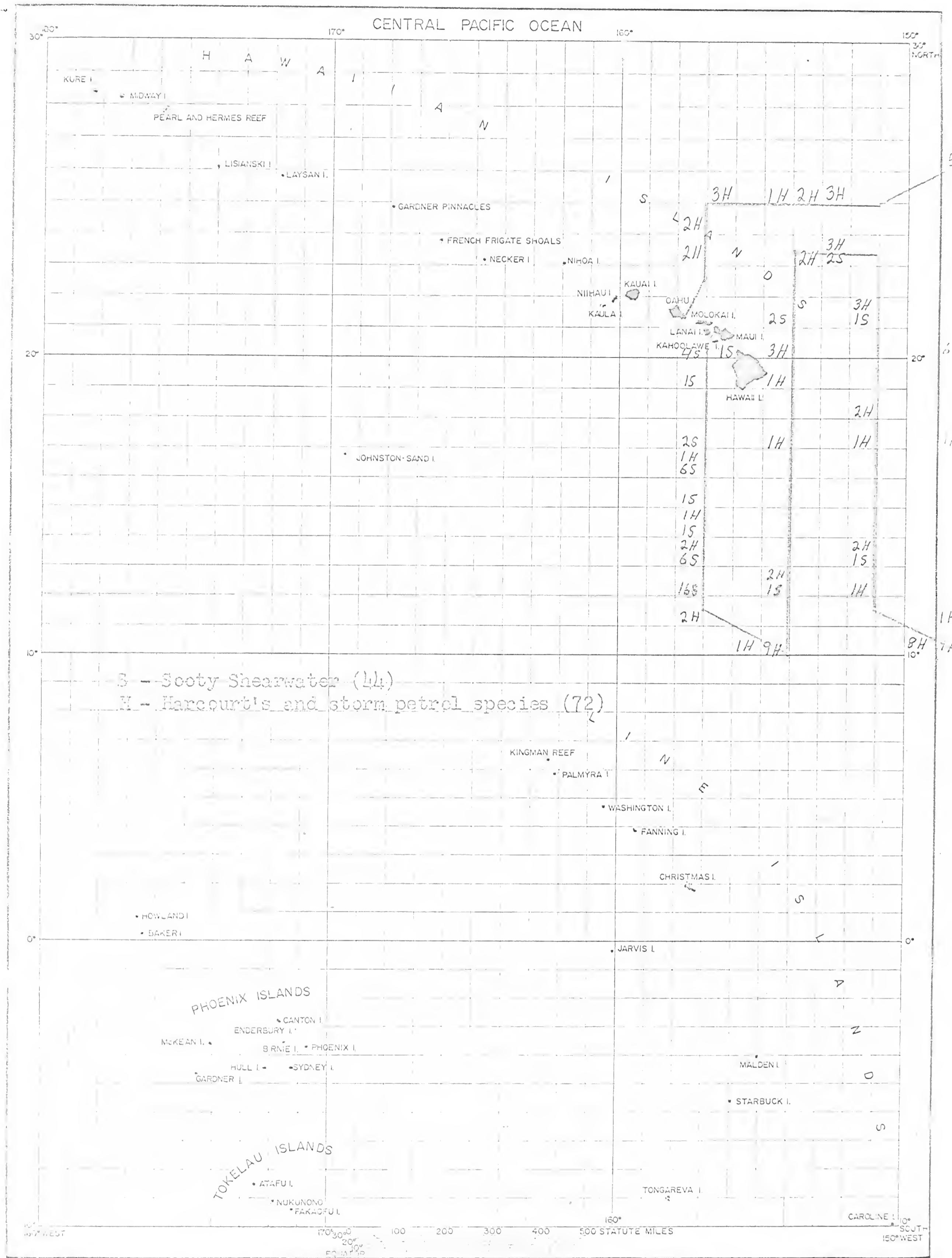
<u>Date</u>	<u>White-necked Petrel</u>	<u>Bonin Island Petrel</u>	<u>Bulwer's Petrel</u>	<u>Storm Petrel</u>	<u>Unidentified Procellariids</u>
May 17	0	0	81	0	4
18	0	0	2	1	23
19	2	10	8	5	60
20	8	9	8	9	11
21	1	12	0	2	5
22	0	0	6	1	3
23	0	0	2	4	3
24	0	0	0	5	0
25	0	0	0	3	0
26	0	0	7	3	2
27	7	7	11	3	16
28	4	9	2	9	21
29	12	9	7	1	105
30	0	10	1	1	10
31	0	1	1	6	2
June 1	0	0	0	1	1
2	0	0	7	5	1
3	0	1	6	6	50
4	0	0	18	7	5
5	0	1	11	0	0
Total	20	69	178	72	322
Average	1.7	3.5	8.9	3.6	16.1

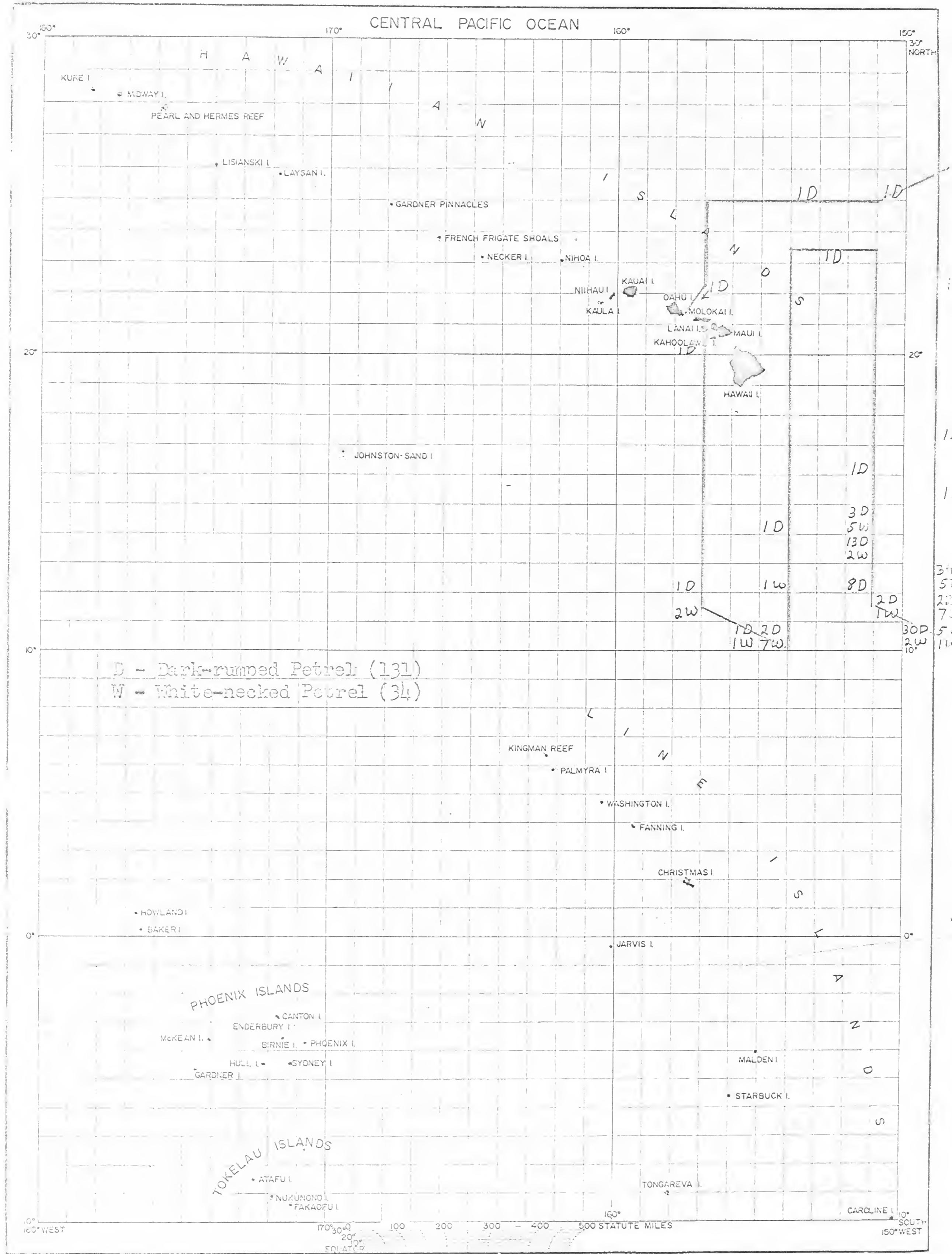


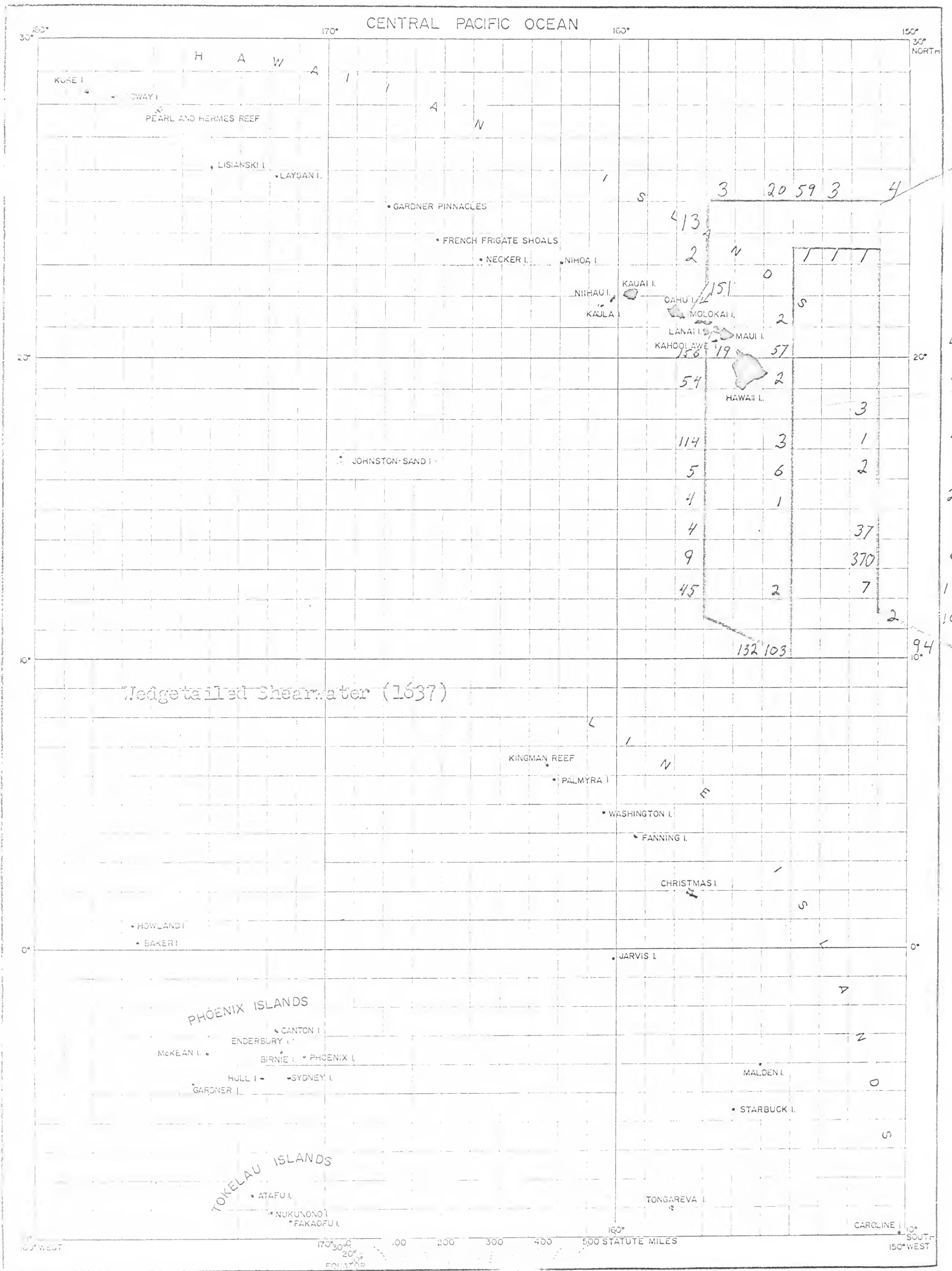
CENTRAL PACIFIC OCEAN











CENTRAL PACIFIC OCEAN

CENTRAL PACIFIC OCEAN

Map showing bird distribution in the Central Pacific Ocean, with symbols indicating bird counts:

- 2R - Red-tailed Tropicbird (25)
- 1T - White-tailed Tropicbird (24)
- T - tropicbird species (13)

HAWAIIAN ISLANDS

- KURE I.
- MIDWAY I.
- PEARL AND HERMES REEF
- LISIANSKI I.
- LAYSAN I.
- GARDNER PINNACLES
- FRENCH FRIGATE SHOALS
- NECKER I.
- NIHOA I.
- NIIHAU I.
- KAUAI I.
- OAHU I.
- MOLOKAI I.
- LANAI I.
- MAUI I.
- KAHOLAE I.
- HAWAII I.
- JOHNSTON-SAND I.

PHOENIX ISLANDS

- KINGMAN REEF
- PALMYRA I.
- WASHINGTON I.
- FANNING I.
- CHRISTMAS I.
- JARVIS I.
- HOWLAND I.
- BAKER I.
- CANTON I.
- ENDEAVOUR I.
- URAN I.
- BRNIE I.
- PHOENIX I.
- HULL I.
- GARDNER I.
- SYDNEY I.

TONELAU ISLANDS

- ATAFU I.
- NUNUNONO I.
- FAKAOFOU I.
- TONGAREVA I.

CAROLINE ISLANDS

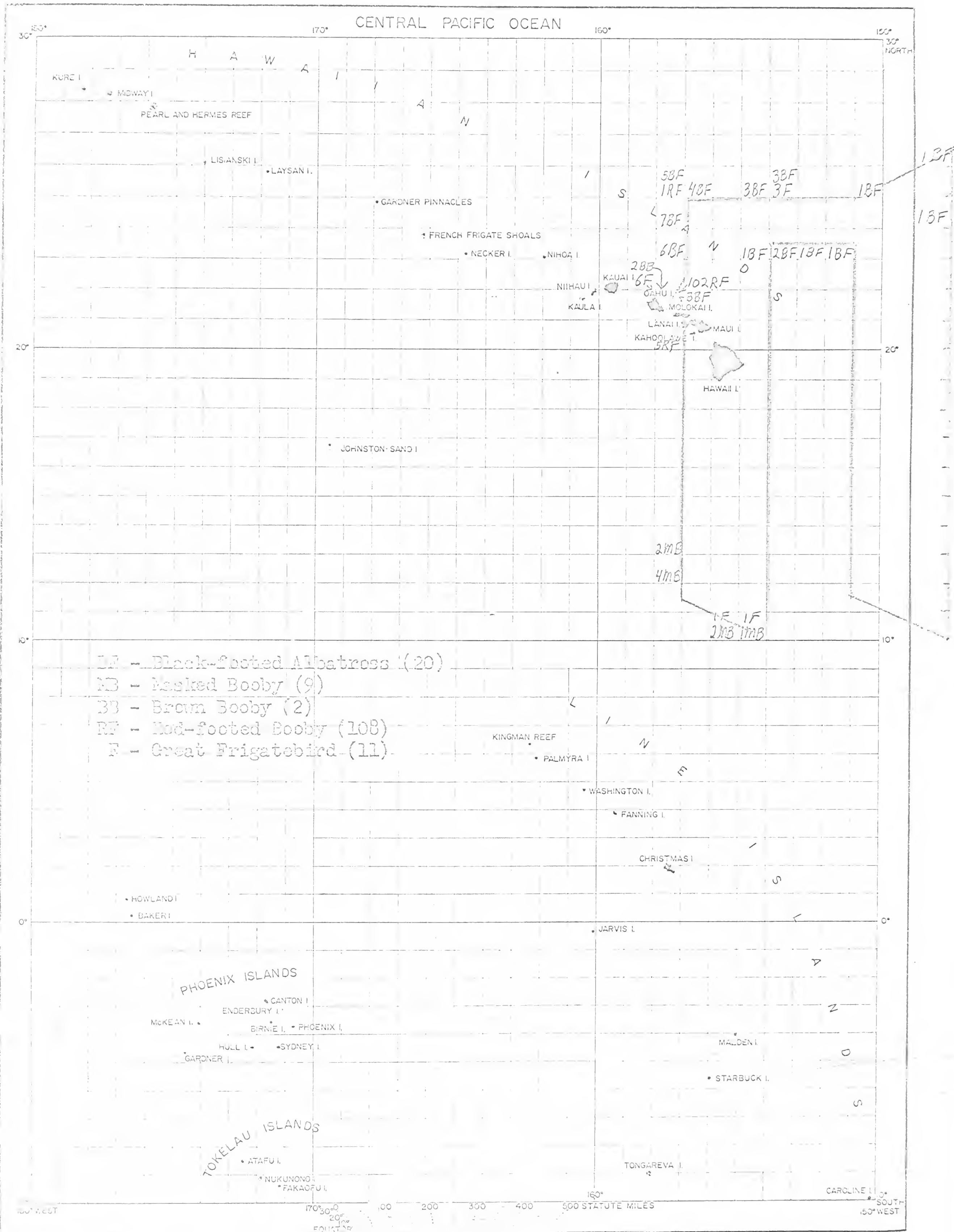
- MALDEN I.
- STARBUCK I.

Scale: 100 200 300 400 500 STATUTE MILES

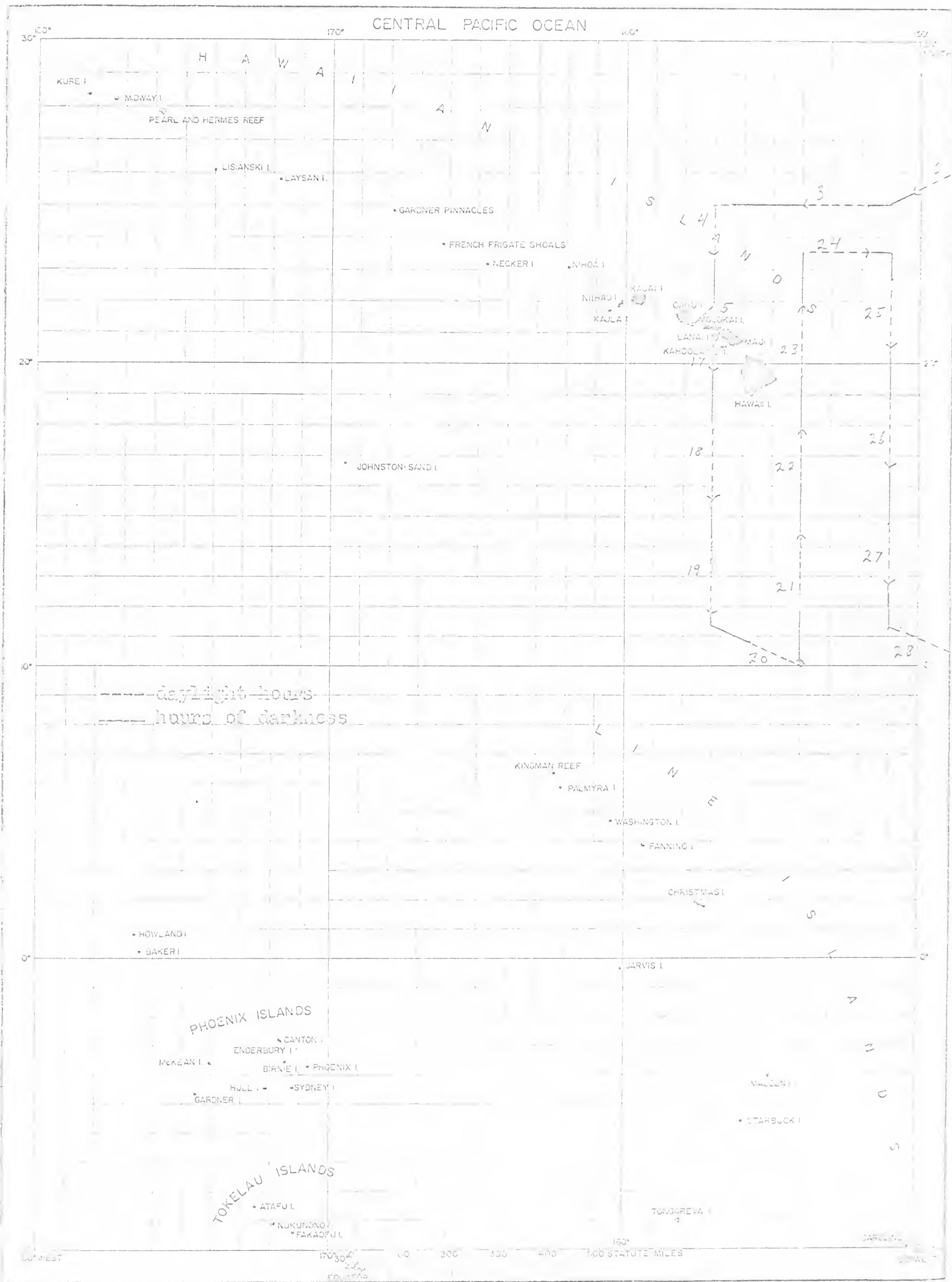
Latitude: 20°N 30°N

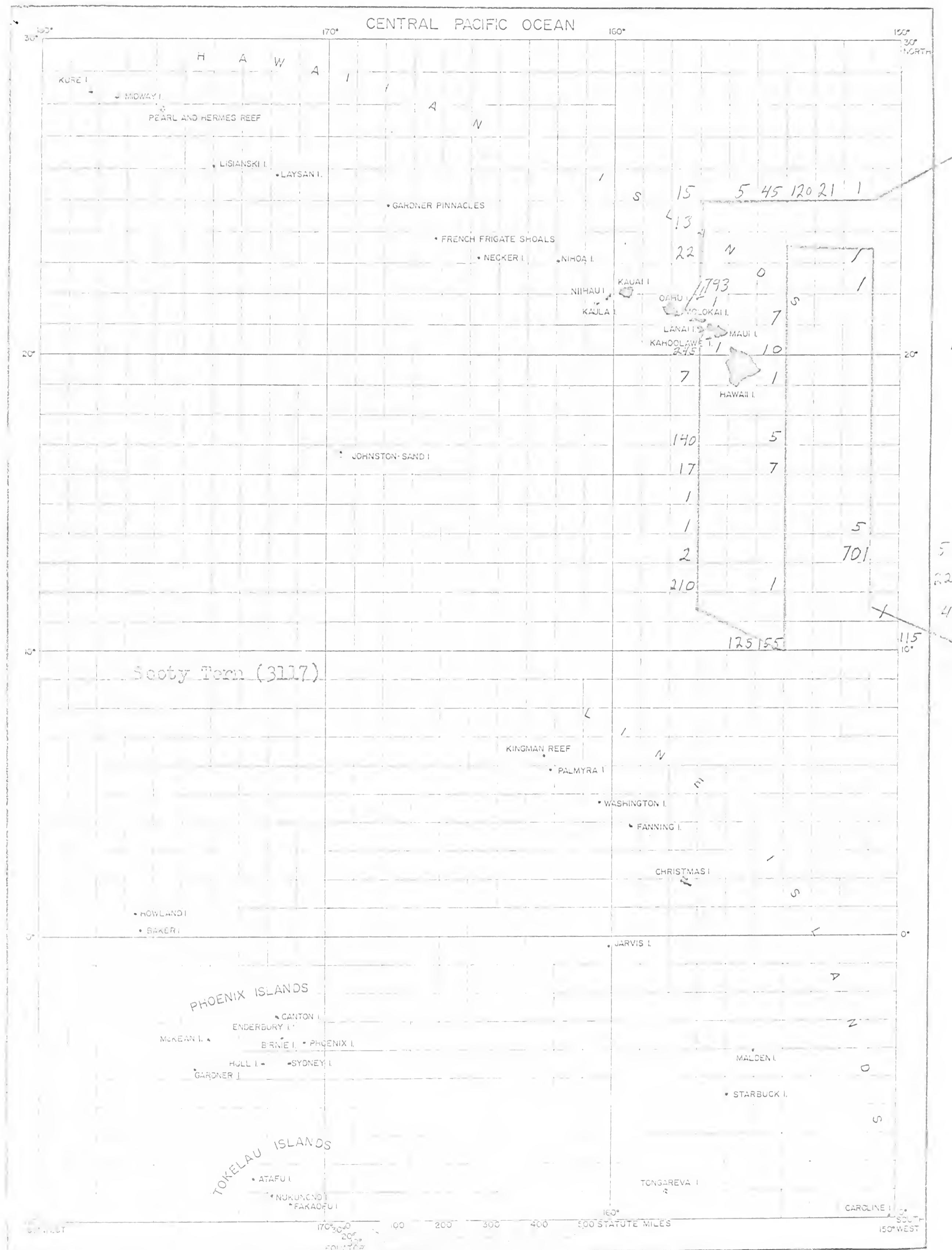
Longitude: 170°W 160°W 150°W

30° NORTH

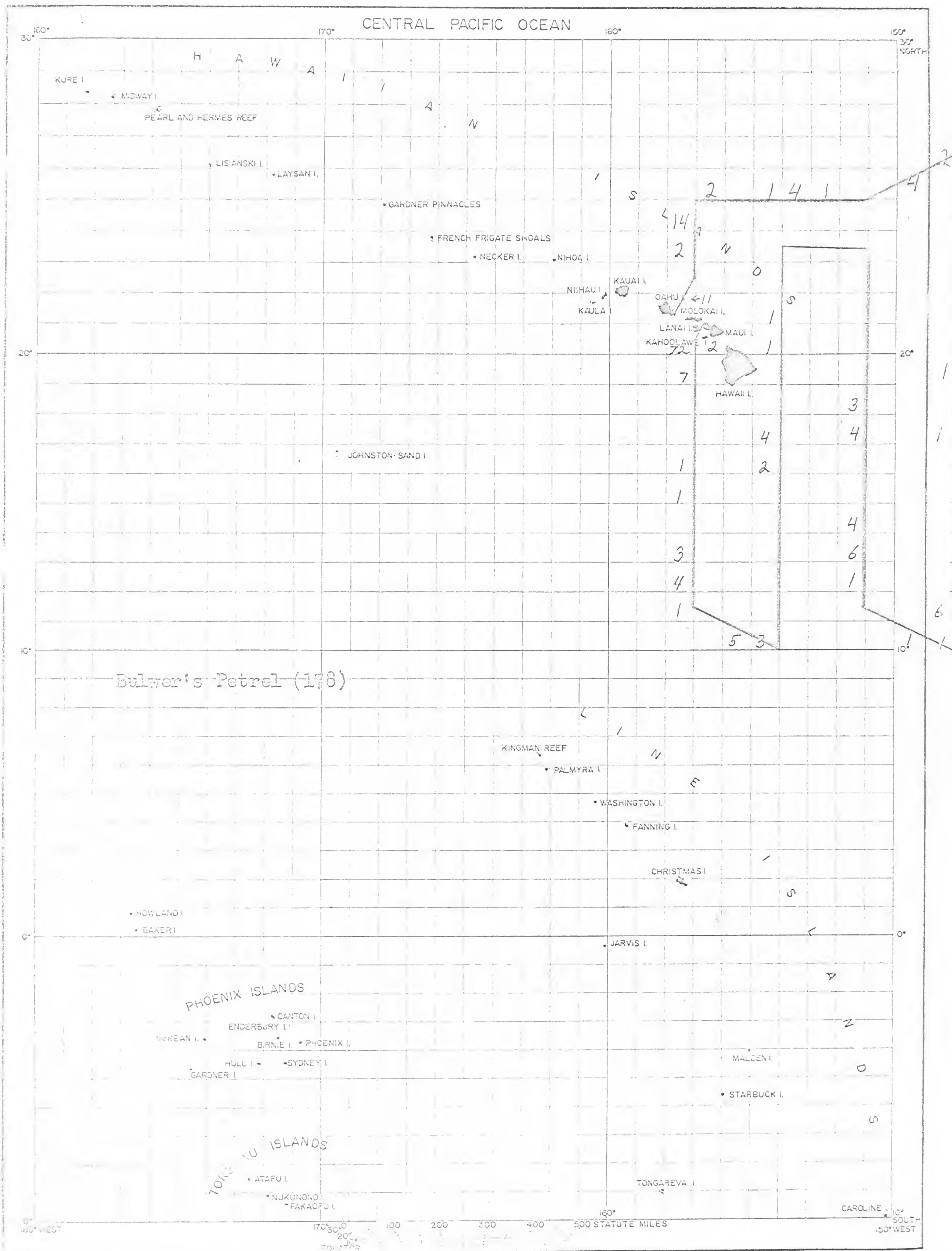


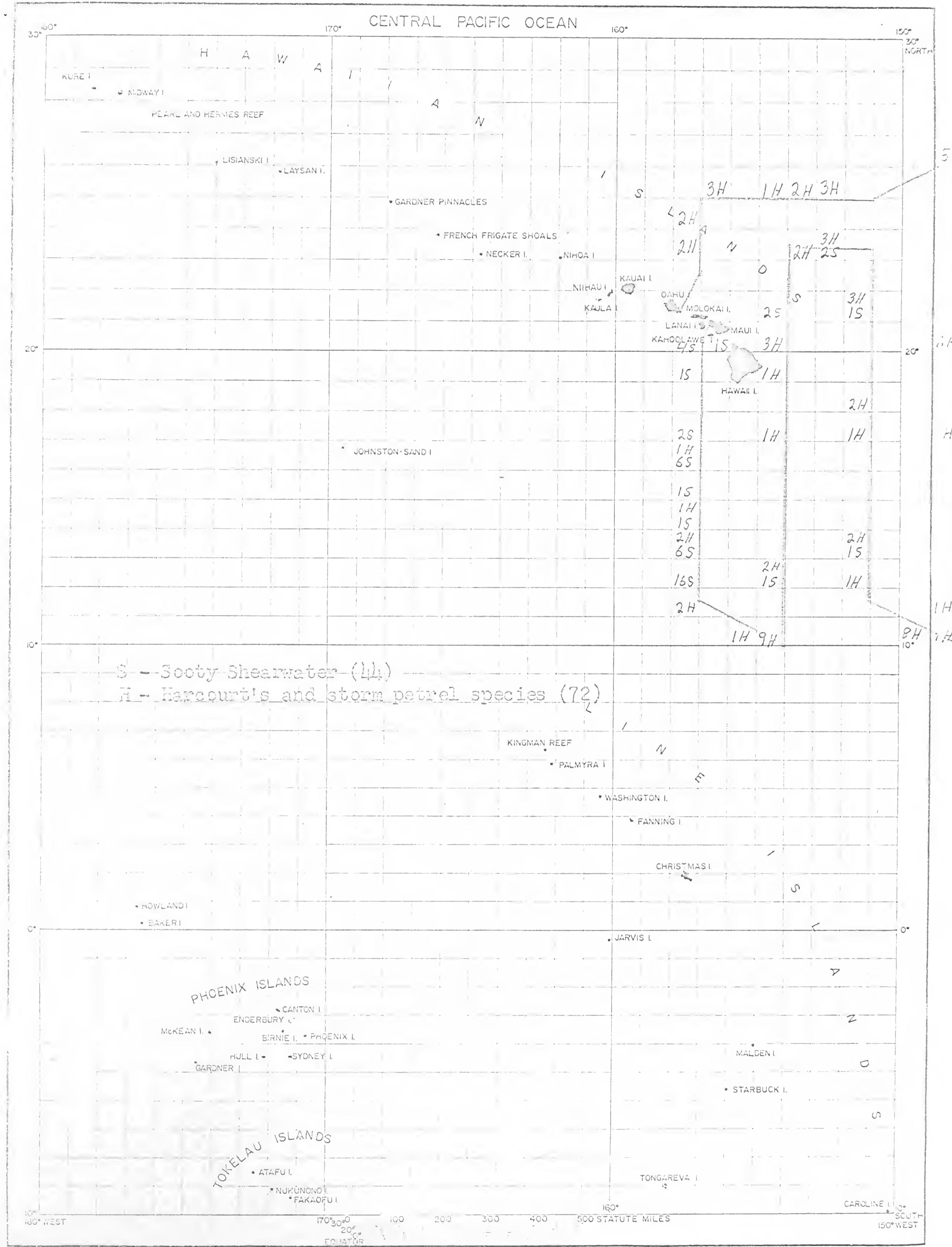
TC 44

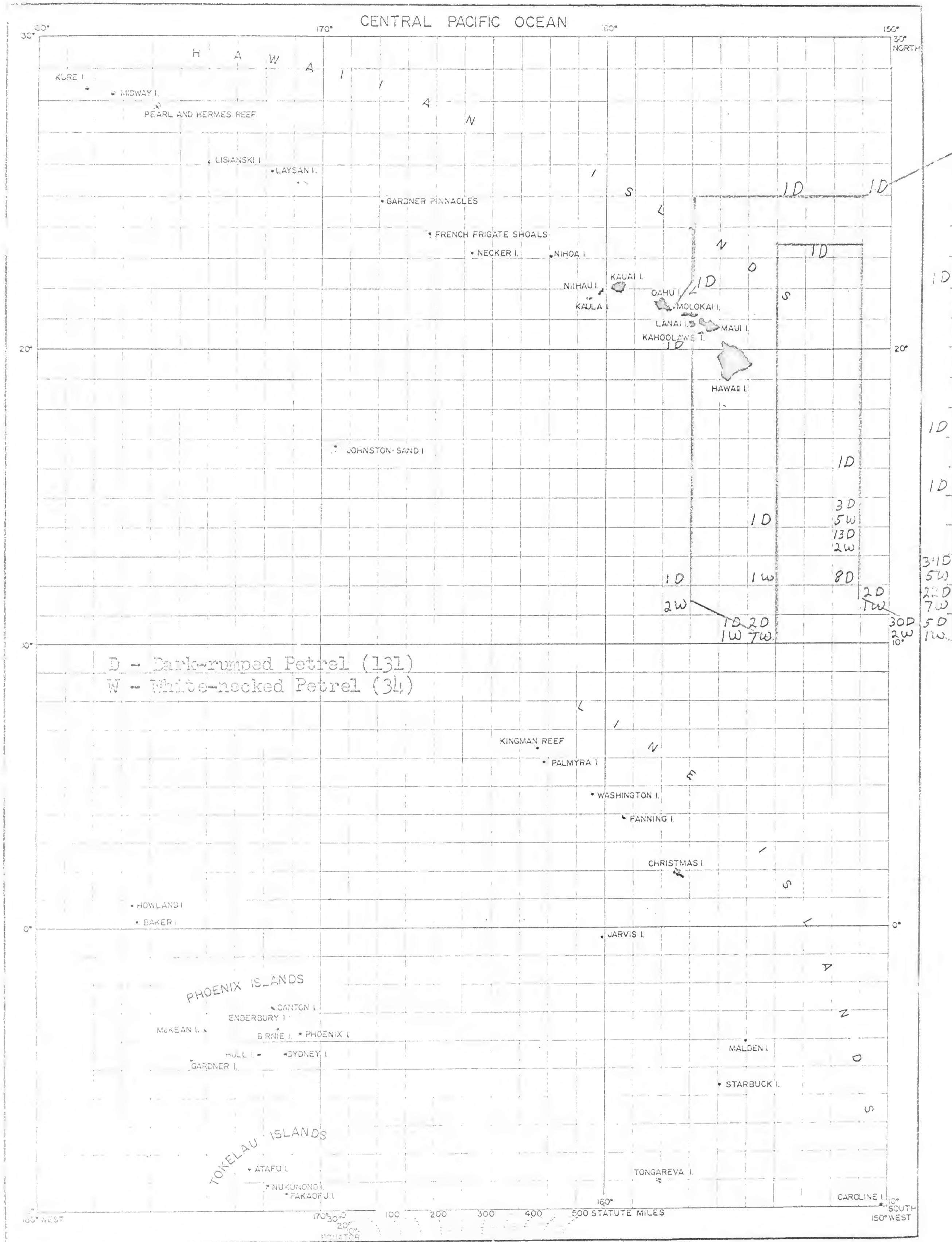


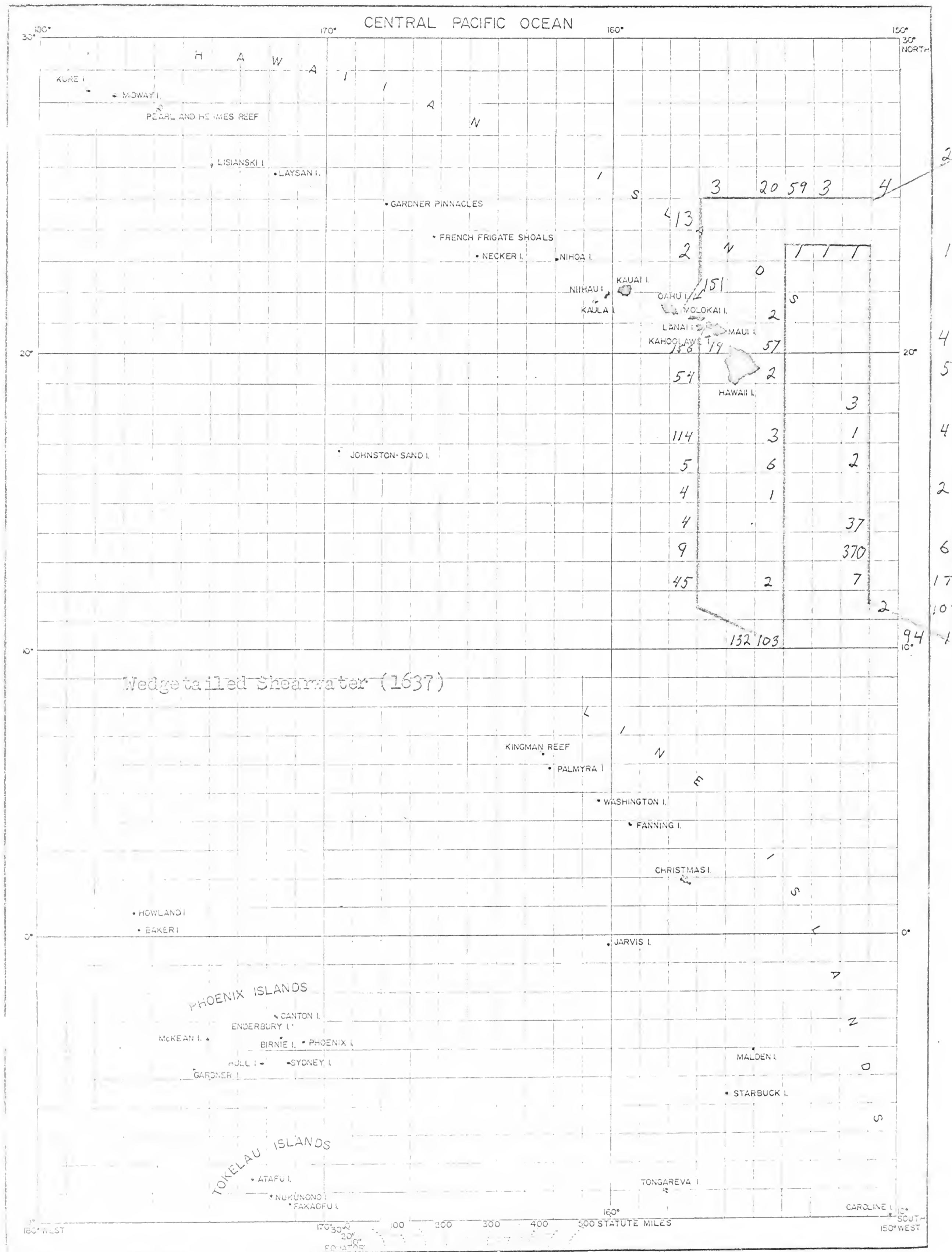


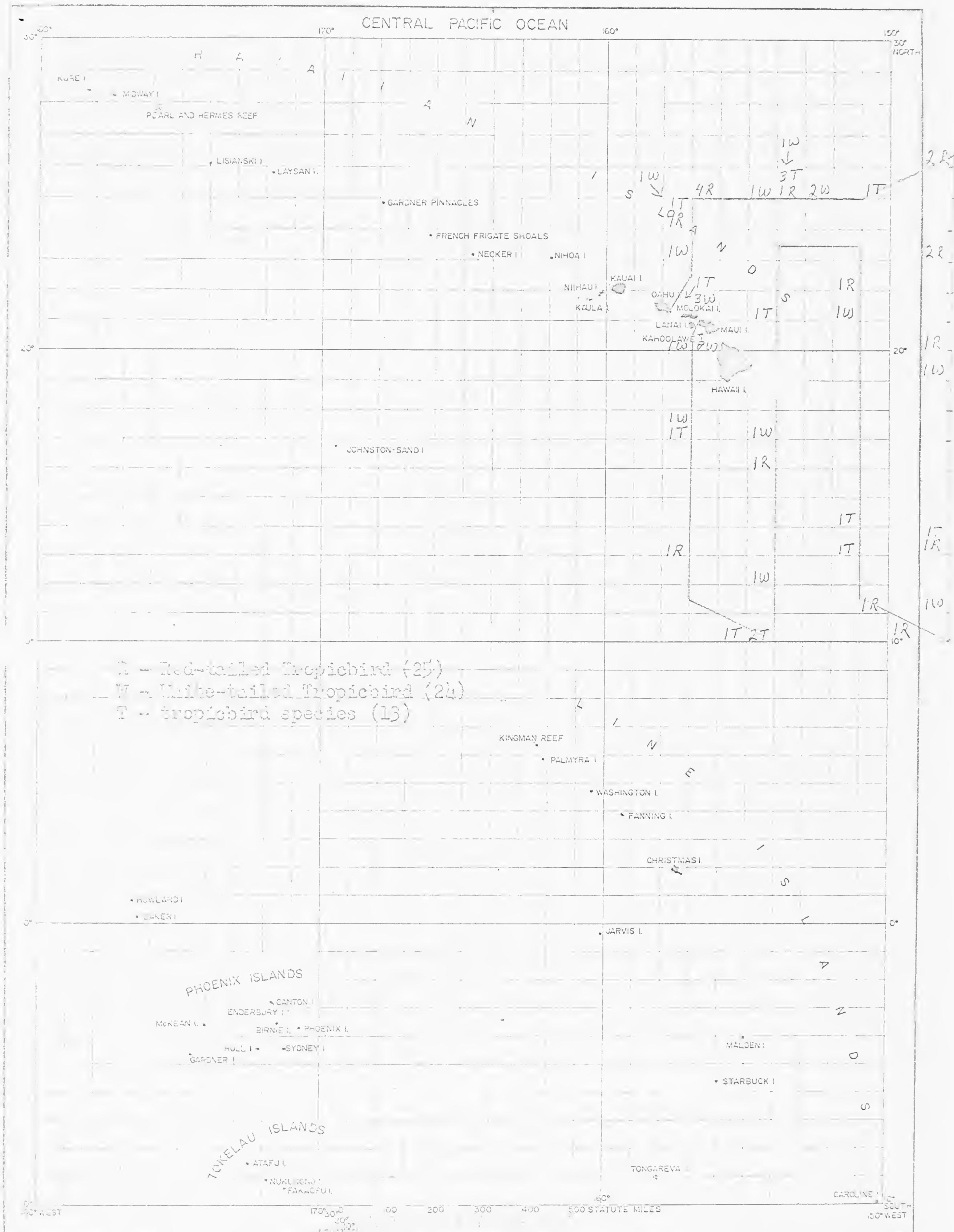
CENTRAL PACIFIC OCEAN

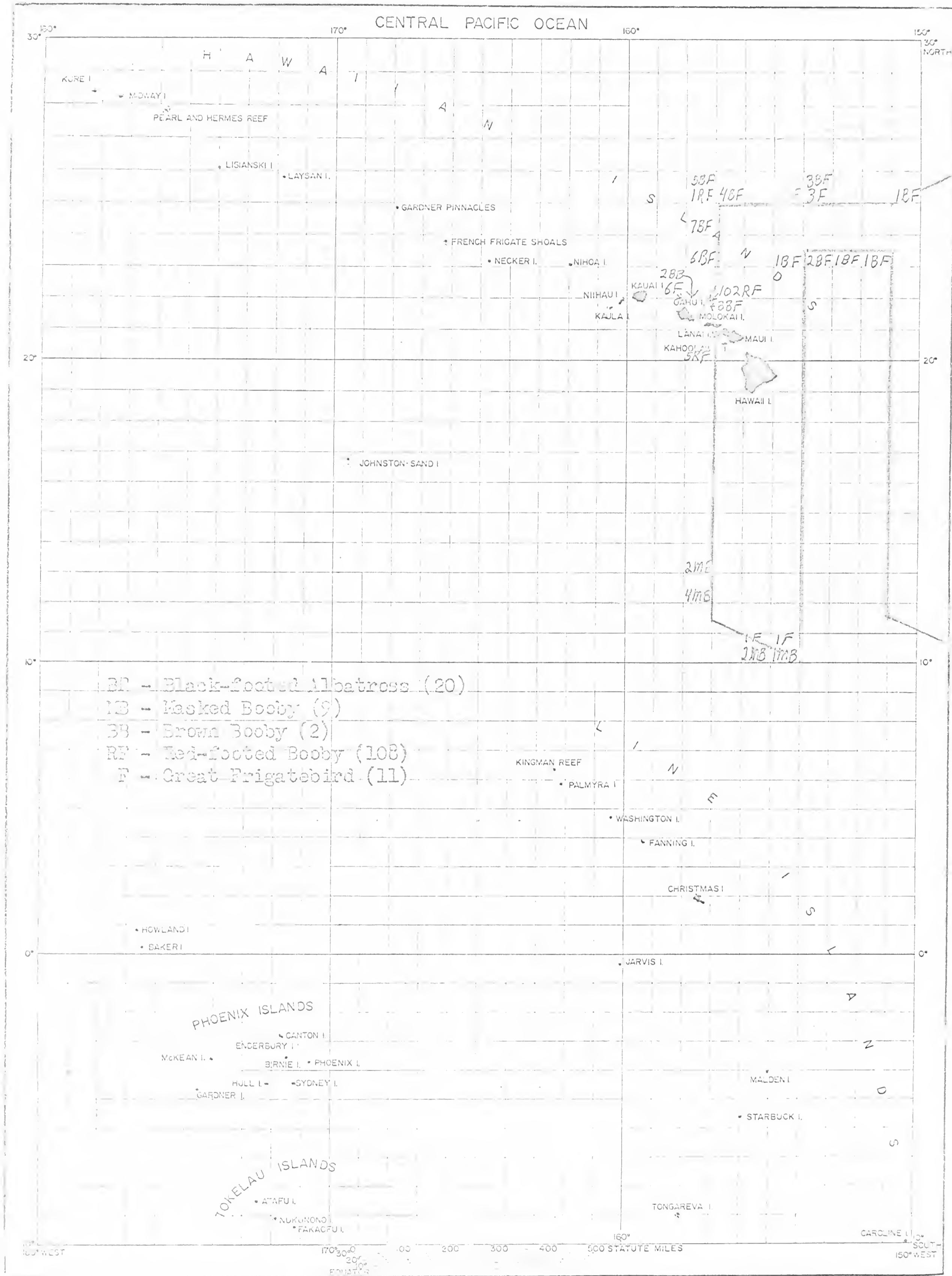












SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 17 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100															
0200															
0300															
0400															
0500															
0700															
0800	20 54	156 28													
0900	21 02	156 31													
1000	21 09	156 34													
1100	20 47	156 28													
1200	20 39	156 29													
1300	20 36	156 31													
1400															
1500															
1600															
1700		7													
1800	21 01	156 02													
1900	21 08	156 03													
2000	19 41	157 00													
2100	19 38	157 00													
2200	19 32	157 00													
2300	19 09	157 00													
2400															

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

6
38
27
18
7
9
105

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 18 May 64

TIME	FAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	19 03	137 00													
0200	19 05	137 00	00	10	1016.0	24.2	20	79	X		X-X-X	24.6	15	50	S-12
0300	19 07	137 00													
0400	19 09	137 00													
0500	19 11	137 00													
0600	19 13	137 00													
0700	19 15	137 00													
0800	19 17	137 00	01	10	1016.3	24.1	21	82	S		60-6-7	24.3	15	70	S-12
0900	19 19	137 00													
1000	19 21	137 00													
1100	19 23	137 00													
1200	19 25	137 00													
1300	19 27	137 00													
1400	19 29	137 00	02	10	1015.5	25.3	22	81	9		190-6-7	24.6	18	80	S-12
1500	19 31	137 00													
1600	19 33	137 00													
1700	19 35	137 00													
1800	19 37	137 00													
1900	19 39	137 00													
2000	19 41	137 00	03	10	1015.5	25.2	22	82	7		X-X-X	25.4	16	70	S-12
2100	19 43	137 00													
2200	19 45	137 00													
2300	19 47	137 00													
2400	19 49	137 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 13 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	14 47	156 59													
0200	14 36	156 59	03	5	1014.5	25.0	22	83	8		60-5-4	25.2	15	60	5-12
0300	14 30	156 59													
0400	14 20	156 59													
0500	14 18	156 59													
0600	14 07	156 59													
0700	13 55	156 59													
0800	13 44	156 59	02	10	1014.9	26.2	23	82	7		60-6-7	25.4	20	60	5-12
0900	13 32	156 59													
1000	13 21	157 01													
1100	13 11	157 01													
1200	13 09	157 01													
1300	12 58	157 02													
1400	12 47	157 02	02	10	1012.4	25.8	23	84	5		60-6-7	26.6	16	70	5-12
1500	12 36	157 02													
1600	12 25	157 02													
1700	12 13	157 02													
1800	12 01	157 02													
1900	11 49	157 02													
2000	11 37	157 02	01	5	1012.1	27.0	23	75	3		60-6-7	27.1	20	70	5-12
2100	11 31	157 01													
2200	11 30	157 01													
2300	11 29	156 59													
2400	11 24	156 49													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 20 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 19	156 38													
0200	11 14	156 27	01	10	1011.3	26.9	24	83	1		80-6-7	27.3	16	80	SE-12
0300	11 09	156 17													
0400	11 04	156 07													
0500	10 59	155 57													
0600	10 55	155 47													
0700	10 50	155 37													
0800	10 46	155 27	15	10	1012.9	26.9	24	83	6		90-6-7	27.2	13	90	SE-12
0900	10 41	155 17													
1000	10 37	155 07													
1100	10 32	154 57													
1200	10 28	154 47													
1300	10 21	154 38													
1400	10 15	154 26	02	10	1010.9	27.8	24	79	3		70-6-7	27.2	12	80	SE-12
1500	10 09	154 16													
1600	10 03	154 06													
1700	10 00	154 00													
1800	10 02	154 00													
1900	10 09	154 01													
2000	10 20	154 01	02	10	1011.9	26.7	23	79	7		70-6-7	27.2	22	80	N-12
2100	10 32	154 00													
2200	10 44	154 00													
2300	10 55	154 00													
2400	11 06	154 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 21 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 18	153 59													
0200	11 30	153 59	50	5	1012.0	26.3	23	81	8		60-6-7	27.0	20	60	N-12
0300	11 32	153 59													
0400	11 37	153 59													
0500	11 49	153 59													
0600	12 00	153 58													
0700	12 12	153 58													
0800	12 24	153 57	02	10	1014.0	25.8	23	84	1		50-9-9	26.3	23	70	N-12
0900	12 35	153 59													
1000	12 46	153 59													
1100	12 58	154 00													
1200	13 04	154 00													
1300	13 05	154 00													
1400	13 17	154 00	02	10	1013.1	26.1	22	77	2		60-6-7	25.1	24	70	N-12
1500	13 29	154 00													
1600	13 40	154 05													
1700	13 52	154 01													
1800	14 03	154 01													
1900	14 14	154 01													
2000	14 25	154 01	01	10	1015.0	25.3	21	77	1		80-6-7	24.9	24	80	N-12
2100	14 29	154 01													
2200	14 30	154 01													
2300	14 34	154 01													
2400	14 46	154 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 22 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	14 58	154 00													
0200	15 09	154 00	02	25	1014.6	24.4	20	77	1		80-6-7	24.6	24	80	N-12
0300	15 20	154 00													
0400	15 31	154 00													
0500	15 42	154 00													
0600	15 53	153 59													
0700	16 00	153 59													
0800	16 00	153 59	02	10	1015.5	25.1	21	77	4		70-6-7	24.8	20	80	N-12
0900	16 11	153 59													
1000	16 23	153 59													
1100	16 35	153 59													
1200	16 46	153 59													
1300	16 58	153 59													
1400	17 10	153 59	03	10	1015.2	24.8	21	79	2						
1500	17 22	153 59									70-6-7	24.9	20	70	N-12
1600	17 32	154 00													
1700	17 32	154 00													
1800	17 44	154 00													
1900	17 56	154 00													
2000	18 08	154 00	01	10	1016.0	24.4	20	77	2		70-6-7	24.1	22	60	N-12
2100	18 13	154 00													
2200	18 25	154 00													
2300	18 37	154 00													
2400	18 48	154 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 23 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	18 59	154 00													
0200	19 10	154 00	50	5	1016.0	22.9	20	83	8		70-6-7	24.2	20	50	N-12
0300	19 10	154 00													
0400	19 20	154 00													
0500	19 31	154 00													
0600	19 42	154 00													
0700	19 53	154 00													
0800	20 04	154 00	61	5	1017.5	23.0	20	83	7		70-8-9	23.4	29	50	N-12
0900	20 16	154 00													
1000	20 27	154 00													
1100	20 38	154 00													
1200	20 49	154 01													
1300	20 49	154 01													
1400	20 58	154 00	25	5	1018.0	24.2	19	73	7		70-8-9	23.3	28	70	N-12
1500	21 10	154 00													
1600	21 21	154 01													
1700	21 32	154 01													
1800	21 44	154 01													
1900	21 56	154 01													
2000	21 59	154 02	01	5	1019.6	22.8	18	75	7		70-8-9	23.2	20	90	N-12
2100	21 59	154 02													
2200	22 09	154 01													
2300	22 19	154 01													
2400	22 30	154 01													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 24 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	22 40	154 00													
0200	22 51	154 00	02	5	1020.0	27.8	19	79	8		70-8-9	23.1	26	80	N-12
0300	23 03	154 00													
0400	23 15	154 00													
0500	23 27	154 00													
0600	23 30	154 00													
0700	23 30	154 00													
0800	23 24	153 47	14	5	1021.5	21.8	18	79	7		80-8-7	23.0	18	80	N-12
0900	23 28	153 34													
1000	23 28	153 22													
1100	23 27	153 12													
1200	23 26	153 02													
1300	23 27	153 52													
1400	23 27	153 43	02	10	1021.1	22.2	17	73	8		70-10-9	22.9	23	90	E-12
1500	23 28	152 33													
1600	23 28	152 23													
1700	23 29	152 14													
1800	23 29	152 04													
1900	23 29	151 54													
2000	23 29	151 45	01	10	1021.8	21.6	17	78	6		70-10-9	22.8	20	70	E-12
2100	23 30	151 35													
2200	23 30	151 26													
2300	23 30	151 16													
2400	23 30	151 07													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 25 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	23 30	151 00													
0200	23 28	151 00	03	5	1022.0	21.4	16	72	8		70-10-9	22.6	16	70	5-12
0300	23 16	150 57													
0400	23 04	150 58													
0500	22 52	150 58													
0600	22 40	150 57													
0700	22 29	150 57													
0800	22 18	150 58	02	10	1020.9	21.9	17	74	7		70-6-5	23.1	12	100	5-13
0900	22 07	150 58													
1000	22 01	150 58													
1100	21 59	150 59													
1200	21 48	150 59													
1300	21 36	151 00													
1400	21 25	151 01	02	5	1020.0	22.3	19	81	7		100-6-7	23.1	14	70	5-13
1500	21 13	151 02													
1600	21 01	151 03													
1700	20 49	151 03													
1800	20 37	151 04													
1900	20 28	151 04													
2000	20 28	151 04	03	10	1019.5	23.1	19	77	8		70-6-7	22.4	18	90	5-13
2100	20 23	151 02													
2200	20 11	151 03													
2300	19 01	151 03													
2400	19 50	151 03													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 26 May 64

TIME	FAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	19 38	151 03													
0200	19 26	151 03	02	10	1017.0	23.2	79	77	8		70-6-7	23.4	19	70	2-12
0300	19 14	151 03													
0400	19 02	151 03													
0500	18 55	151 03													
0600	18 53	151 03													
0700	18 44	151 03													
0800	18 32	151 03	14	10	1018.0	23.8	20	79	6		70-6-7	23.5	18	60	3-12
0900	18 21	151 02													
1000	18 09	151 02													
1100	17 58	151 02													
1200	17 45	151 01													
1300	17 34	151 01													
1400	17 30	151 00	02	10	1016.0	24.5	21	80-4			60-6-7	24.4	18	70	3-12
1500	17 27	151 00													
1600	17 14	150 59													
1700	17 01	150 58													
1800	16 48	150 58													
1900	16 37	150 57													
2000	16 24	150 58	01	10	1016.0	24.4	21	81	3		60-6-5	24.3	14	80	5-12
2100	16 19	150 58													
2200	16 07	150 59													
2300	15 59	150 59													
2400	15 58	150 59													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 27 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	15 47	151 00													
0200	15 35	151 00	02	10	1015.0	23.9	21	83	3		50-6-5	24.1	18	50	S-12
0300	15 22	151 00													
0400	15 10	151 01													
0500	14 58	151 02													
0600	14 45	151 01													
0700	14 33	151 01													
0800	14 30	151 01	03	10	1015.5	25.4	21	77	4		50-6-7	25.8	17	50	S-12
0900	14 24	151 00													
1000	14 12	150 59													
1100	13 59	150 59													
1200	13 48	150 58													
1300	13 35	150 58													
1400	13 23	150 58	03	10	1014.0	26.0	22	78	5		50-6-7	26.1	18	50	S-12
1500	13 10	150 59													
1600	12 58	150 59													
1700	12 58	150 59													
1800	12 47	150 59													
1900	12 35	150 59													
2000	12 25	150 59	02	5	1015.0	25.4	22	81	8		50-6-7	26.4	18	50	S-12
2100	12 20	150 59													
2200	12 08	150 59													
2300	11 55	151 00													
2400	11 43	151 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c

3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 28 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	11 20	151 00													
0200	11 23	151 00	50	5	1014.0	75.7	23	84	8		60-6.7	26.0	19	70	S-12
0300	11 23	150 59													
0400	11 18	150 50													
0500	11 13	150 40													
0600	11 09	150 30													
0700	11 05	150 21													
0800	11 00	150 10	01	10	1014.0	76.2	23	84	6		70-6.5	26.1	12	90	SE-12
0900	10 55	149 58													
1000	10 51	149 48													
1100	10 48	149 38													
1200	10 45	149 28													
1300	10 40	149 19													
1400	10 35	149 10	02	10	1012.7	76.9	24	84	8		60-6.7	26.4	12	100	SE-11
1500	10 30	149 00													
1600	10 26	148 51													
1700	10 21	148 41													
1800	10 17	148 32													
1900	10 12	148 22													
2000	10 07	148 13	03	10	1013.7	76.1	24	84	5		60-6.7	26.6	17	110	SE-15
2100	10 04	148 08													
2200	10 04	148 08													
2300	10 12	148 08													
2400	10 21	148 08													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 29 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	10 35	148 08													
0200	10 47	148 08	02	10	10132	26.2	24	87	6		110-5-5	26.6	09	110	N-12
0300	10 58	148 08													
0400	11 10	148 08													
0500	11 21	148 08													
0600	11 32	148 08													
0700	11 38	148 08													
0800	11 41	148 08	02	5	1014.9	25.8	23	84	8		50-6-7	26.2	17	110	N-12
0900	11 54	148 08													
1000	12 05	148 08													
1100	12 16	148 08													
1200	12 25	148 08													
1300	12 37	148 08													
1400	12 48	148 08	03	10	1014.7	26.9	24	83	6		50-6-7	25.8	18	60	N-12
1500	13 00	148 06													
1600	13 00	148 06													
1700	13 08	148 05													
1800	13 18	148 05													
1900	13 28	148 05													
2000	13 42	148 04	25	10	1015.8	25.6	22	80	8		50-7-9	25.7	17	60	N-12
2100	13 47	148 04													
2200	13 54	148 02													
2300	14 11	148 01													
2400	14 23	148 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 30 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	14 30	147 58													
0200	14 31	147 58	01	5	1015.0	25.0	22	83	7		60-7-9	23.5	16	60	N-12
0300	14 44	147 57													
0400	14 56	147 55													
0500	15 02	147 54													
0600	15 20	147 54													
0700	15 32	147 53													
0800	15 46	147 55	02	5	1016.0	25.0	21	78	7		70-6-7	24.8	20	90	N-12
0900	15 58	147 56													
1000	16 01	147 56													
1100	16 05	147 57													
1200	16 17	147 57													
1300	16 30	147 58													
1400	16 42	147 59	02	10	1016.0	24.5	21	80	6		70-6-4	24.5	16	70	N-12
1500	16 54	148 00													
1600	17 06	148 00													
1700	17 19	148 02													
1800	17 31	148 04													
1900	17 43	148 04													
2000	17 41	148 03	01	10	1017.0	24.0	21	83	6		70-6-4	24.1	19	80	N-12
2100	17 47	148 02													
2200	17 59	148 01													
2300	18 11	148 00													
2400	18 23	148 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE

31 May 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	18 35	147 59													
0200	18 47	147 58	01	10	1017.0	23.6	20	80	5		70-6-4	23.8	14	70	N-12
0300	18 59	147 57													
0400	18 59	147 57													
0500	19 07	147 57													
0600	19 19	147 56													
0700	19 30	147 56													
0800	19 31	147 51	02	10	1019.2	23.4	20	81	2		80-6-5	23.8	18	60	N-12
0900	19 52	147 52													
1000	20 00	147 52													
1100	20 14	147 52													
1200	20 28	147 59													
1300	20 30	147 59													
1400	20 30	147 59	02	25	1019.2	23.8	19	75	3		80-6-4	23.8	15	70	N-12
1500	20 30	147 59													
1600	20 30	147 59													
1700	20 30	147 51													
1800	20 30	147 59													
1900	20 30	147 57													
2000	20 43	147 56	02	25	1020.0	23.7	20	79	2		80-6-7	23.7	16	60	N-12
2100	20 48	147 52													
2200	21 00	147 57													
2300	21 12	147 57													
2400	21 25	147 51													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 1 June 69

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	21 37	147 57													
0200	21 49	147 58	02	25	1020.7	23.1	18	73	2		80-6-7	23.1	16	do	N-12
0300	22 02	147 58													
0400	22 03	147 58													
0500	22 07	147 58													
0600	22 20	147 58													
0700	22 33	147 58													
0800	22 45	147 58	02	25	1022.4	23.0	17	76	2		90-6-4	23.0	15	90	N-12
0900	22 58	147 58													
1000	23 11	147 59													
1100	23 24	147 59													
1200	23 32	147 59													
1300	23 34	147 59													
1400	23 46	147 59	02	25	1022.1	23.7	19	79	2		100-6-4	23.7	12	100	N-12
1500	23 58	147 59													
1600	24 09	148 00													
1700	24 21	148 00													
1800	24 33	148 00													
1900	24 45	148 00													
2000	24 54	147 59	02	25	1012.0	23.8	19	79	2		120-5-2	23.3	12	120	N-12
2100	25 00	147 59													
2200	25 00	147 59													
2300	25 09	147 58													
2400	25 21	147 57													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 2 June 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 32	147 56													
0200	25 14	147 55	02	25	1022.0	22.0	21	94	1		100 5-2	22.3	8	100	N-12
0300	25 56	147 54													
0400	26 08	147 53													
0500	26 20	147 53													
0600	26 39	148 00													
0700	26 39	148 00													
0800	26 25	148 06	01	10	1021.0	22.4	17	72	7		140 5-2	22.3	13	190	SW-12
0900	26 20	148 18													
1000	26 15	148 30													
1100	26 07	148 42													
1200	26 03	148 54													
1300	25 59	149 05													
1400	25 53	149 17	03	10	1019.0	23.2	18	73	6		210 5-4	22.5	13	220	SW-12
1500	25 46	149 28													
1600	25 40	149 40													
1700	25 34	149 51													
1800	25 28	150 03													
1900	25 22	150 14													
2000	25 16	150 25	01	25	1018.0	22.7	19	79	1		250 5-4	23.4	11	250	SW-12
2100	25 14	150 30													
2200	25 09	150 41													
2300	25 04	150 52													
2400	25 00	151 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 3 June 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 00	151 00													
0200	25 00	151 11	03	10	1017.0	23.6	21	87	5		240-5-5	23.3	18	240	W-12
0300	25 07	151 23													
0400	24 57	151 35													
0500	24 59	151 47													
0600	24 58	151 59													
0700	24 58	152 12													
0800	24 38	152 15	14	10	1017.5	23.4	20	81	7		250-5-7	23.1	10	240	W-12
0900	24 38	152 38													
1000	24 57	152 50													
1100	24 57	153 02													
1200	24 57	153 14													
1300	24 56	153 26													
1400	24 59	153 39	03	10	1017.5	23.6	20	80	4		290-5-5	24.1	12	340	W-12
1500	24 56	153 51													
1600	24 56	153 52													
1700	24 55	153 59													
1800	24 57	154 12													
1900	24 58	154 25													
2000	24 57	154 37	01	25	1017.0	22.7	17	70	3		300-5-5	24.1	18	300	W-12
2100	24 58	154 42													
2200	24 58	154 54													
2300	24 58	155 06													
2400	24 58	155 18													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c

3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE

4 June 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	24 58	155 28													
0200	24 59	155 31	01	25	1017.3	22.2	17	73	2		290.5-5	23.9	5	320	W-12
0300	25 00	155 31													
0400	25 00	156 07													
0500	25 00	156 17													
0600	25 00	156 26													
0700	25 00	156 38													
0800	25 00	156 50	02	25	1018.1	22.2	17	72	1		320.5-2	23.9	4	310	W-12
0900	25 00	157 01													
1000	25 00	157 31													
1100	24 58	157 00													
1200	24 42	157 00													
1300		157 00													
1400		156 59	03	10	1017.8	24.7	18	66	7		270.5-2	24.8	5	270	S-12
1500		156 59													
1600	24 00	156 59													
1700		156 59													
1800		156 59													
1900	23 30	156 59													
2000	23 30	156 59	02	10	1018.0	24.1	18	69	6		200.5-2	25.2	5	200	S-12
2100		156 59													
2200		156 59													
2300		156 59													
2400	22 49	157 00													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c
3-4-64

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA SURVEY CHART C

DATE 5 June 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100															
0200															
0300															
0400															
0500															
0600															
0700															
0800															
0900															
1000															
1100	21 14	157 47													
1200	21 14	157 48													
1300	21 10	157 53													
1400															
1500															
1600															
1700															
1800															
1900															
2000															
2100															
2200															
2300															
2400															

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS